February

25 Cents

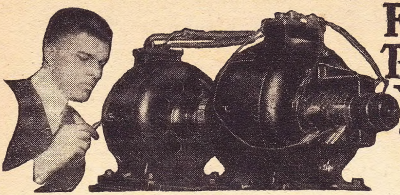
AMAZING STORIES

Scientifiction by:

A. Hyatt Verrill
David H. Keller, M. D.
Capt. S. P. Meek, U. S. A.
Harl Vincent

AMAZING STORIES - SCIENTIFICTION

FEBRUARY
1930



Fellows I Have Trained Will Tell You That You, Too, Can Cash In On

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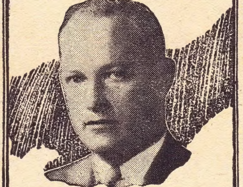

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AMAZING STORIES

February, 1930
Vol. 4, No. 11

Experimenter Publications, Inc.
B. A. Mackinnon, Pres. H. K. Fly, Vice Pres. and Treas.

JULES VERNE'S TOMBSTONE AT AMIENS
PORTRAYING HIS IMMORTALITY

In Our Next Issue:

THE GREEN GIRL, by Jack Williamson, (A serial in 2 parts) Part I. This well-known author comes to us now with a truly unique story which might or might not be called interplanetary—so much time is spent in a spectacular migration to a strange land beneath the waters of the Pacific. Start the first instalment in this issue.

THE SHIP THAT TURNS ASIDE, by G. Peyton Wertenbaker. We are glad to be able to give our readers another story by the author of "The Chamber of Life" so soon after the other. This author has been well known as a writer of unusual scientific fiction for a long time now. In delving into the bizarre tales of travelers in unknown space and into the 4th dimension, he seems to be better than ever.

SYNTHETIC, by Charles Cloukey. By this time, Mr. Cloukey has become a familiar and well-liked name in AMAZING STORIES. This time he offers us an exceedingly clever, swift-moving aviation story of the future that shows good imagination and excellent knowledge of his subject.

LANTERNS OF GOD, by Robert A. Wait. It is some time since we have heard from Mr. Wait, who is not only a scientist of note, but a writer of extremely good scientific fiction as well. "Lanterns of God" is a fascinating astronomical fantasy, dealing with the troubles of the earth from cosmic and interplanetary forces.

CALLISTO AT WAR, by Harl Vincent. Here is the promised sequel to "Explorers of Callisto," which appears in the February issue, and in which Mr. Vincent—in his best style—continues the adventures of the Tellurians and Lola, the moon woman. There may be much of interest on the other side of the moon. Who knows?

REMOTE CONTROL, by Walter Kateley. The author shows great ingenuity in treating the subject of the control of intellects of animals from a center of dissemination. Basing our assumption on present-day findings, we can hardly say that the conception of "Remote Control" is impossible. This story was crowded out of the February issue.

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Our Cover

this issue illustrates an episode from the story entitled, "Explorers of Callisto," by Harl Vincent, in which are shown several villainous Lunarians in hot pursuit of their victim—a princess of the waning race on the other side of the moon.

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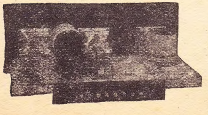

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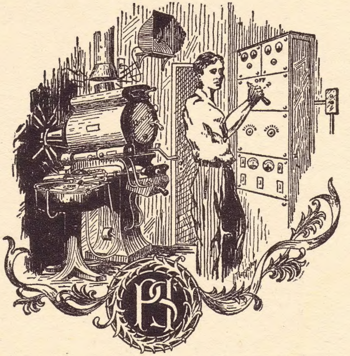

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VOLUME
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AMAZING STORIES
THE
MAGAZINE
OF
SCIENTIFICTION

FEBRUARY, 1930
No. 11

T. O'CONOR SLOANE, Ph.D., *Editor*
MIRIAM BOURNE, *Managing Editor*
WILBUR C. WHITEHEAD, *Literary Editor*
C. A. BRANDT, *Literary Editor*

Editorial and General Offices: 381 Fourth Avenue, New York, N. Y.

Extravagant Fiction Today - - - - - - - - - - Cold Fact Tomorrow

Discs

By T. O'Conor Sloane, Ph.D.

IF we cut a circle out of paper or piece of wood, we have what is called a disc. Of course, the minute a disc becomes of any thickness it may be classed as a cylinder, but for our purposes we will call anything circular in shape and width and with parallel sides a disc, no matter how thick it is. It will be curious to see what an enormously important part the disc plays in this world of ours. Presumably, the first method of transporting goods over the surface of the earth was with a sled, which had to be dragged along. In going a mile, a person had to overcome or contend with one mile of friction. To reduce the amount of friction, a pair of discs were taken, holes bored through their centers, mounted on an axle, thus forming the basis for a cart. Here the mileage friction was reduced to a few feet, according to the relation of the circumference of the axle to the circumference of the disc, which we will now call a wheel.

And this utterly improved mechanism, the wheel and axle, has proved to be one of the most important things in all this world of ours. The vehicles which crowd our streets, so that it is a problem how the pedestrian can get across, all go upon wheels; the thousands and thousands of miles of railroad all go upon wheels, and the enormous business which has been done in Wall Street is based largely on wheels, because not only railroads but manufacturing concerns, every business that uses machinery, is dependent upon wheels—upon our disc. In the days that Homer tells of, the chariot, carrying a warrior with his aide, was a most important element in the army. The poet describes the putting together of a war chariot in preparation for the battle, showing what a wonderfully light, trivial structure it was. As it had no springs, the wonder is how it could keep together or why its jumping about did not dislodge its occupants.

In old Virginia the transportation of tobacco in great casks by attaching journals to the heads and having horses drag them along, the casks rolling along behind them, represents the same thing—a collection as it were of discs.

When a disc is in rapid rotation, it develops gyroscopic force and this is what makes the spinning top preserve its equilibrium, makes it when displaced restore itself and come up to its vertical axis of rotation again. It is the force that is used on the gyroscopic compass, and on a larger scale on the stabilizing gyroscope, to prevent ships from rolling. There are tons and tons of cargo in ships which are controlled by a rotating disc. The gyroscopic force, to which we have alluded, is employed to keep projectiles in their proper trajectory. The little pellet of lead from the 22-calibre rifle and the 16-inch steel projectile from the great naval guns are both set in rotation around their axes so that each represents a cylinder made up of whirling discs and the gyroscopic force prevents variation from their due course. And as we stop to think that every steam engine, gas engine or water wheel is devoted to whirling discs around, we will see what an important part it plays in the mechanics of the world.

Then as we come down to minutiae you will find in a little ten-cent glass cutter a minute disc of steel, and this disc, very hard and sharp, makes a mark upon glass which determines where it will break. It is, in other words, somewhat incorrectly called a glass cutter. but of course, it doesn't cut. Again we have the smallest type of disc doing a really wonderful work, a ten-cent disc displacing the very expensive diamond which, previous to the invention of this glass cutter, was used by all glaziers.

The system of power represented in this country by factory and by railroad, by automobiles—are all based on the use of rotating discs. The wheels must turn or industry ceases. And the same applies all over the world. But there are some cases where mechanical operations are carried on by percussion, where reciprocating action is used as the controlling process. Such instruments are: pile drivers, riveters, trip hammers and the like, which of course, represent in the aggregate a very large division of mechanics. But the capital they represent, and the work they do, is trivial, compared to that done by rotation—by turning wheels or discs.

We often hear stories about space flying—about the visits to other planets, to other celestial bodies, and here we come across a case where rotation is eliminated. The action of the propeller of an airplane is based upon the presence of air. It screws its way through air just as a wood-screw screws its way through wood—or, more comparably, as a ship is driven through the water by its propeller. But at a very short distance from the earth—say twenty or thirty miles—air is practically absent, and a little further—that is, if we get out into space at what may be termed a cosmic distance from the surface of the earth, we will be in substantially a complete vacuum—and the propeller of an airplane might turn at any speed, but it would have practically no action whatever in drawing the plane through space—and here we would have to come, as far as we know, to rocket propulsion, which amounts to the expulsion of gas at high velocity from the rear of the plane; the axes of the rocket, or cases from which the gases are discharged, would be parallel with the axis of the machine. In other words, we are definitely removed from the idea of the whirling disc.

It would be easy to go on for a very long time citing the cases to which the idea of a whirling disc may be made to apply. But the reader has only to think for a moment of how many machines—for a watch, or anything of that sort, is a machine—or mechanical appliances he can name, in which the rotating wheel or the rotating disc does not play an all-important part,

To take a very popular illustration of a disc, we may take the baseball. The wonderful curves that the expert pitcher can produce are based upon two things: the gyroscopic action of a rotating set of discs and the friction of its rotation against the atmosphere through which it goes. So, even a World's Series Game depends largely upon the rotation of a set of discs of graduated sizes.

The EXPLORERS *of*

By Harl Vincent

Author of "Barton's Island," "Microcosmic Buccaneers," etc.

GIGANTIC telescopes of enormous power have been made and planets and satellites have been studied many millions of miles away. Even a fairly good outline of the general conditions of Mars and of the moon have been evolved. But what is happening on the other side of the moon? No telescope, however powerful, can penetrate the material of that satellite. Only a trip to it could help us solve the mysteries of its hidden side. Still, accepting certain hypotheses, certain conclusions may be permissible. Mr. Vincent, apparently, has been wondering about the subject in question and in his characteristic manner gives us his views in an excellent piece of scientific fiction. We have asked Mr. Vincent to give us a sequel, so sure were we that you would want it. And we can promise even now that it will be worthy of its predecessor.

Illustrated by MOREY

Signals From the Moon

"THERE is no need of searching for further evidence, Ray. This is conclusive proof of your suspicion."

"It certainly looks that way, Gary. But who will believe that beings exist on the moon who could transmit such messages?"

Ray Parsons, experimenter and inventor, gazed quizzically at his friend Gary Walton, chief engineer of the great International Communications Corporation.

"Oh, they won't believe us," laughed Walton. "But neither did we believe that Mars and Venus were inhabited until a few short years ago."

"This is different. It was long conceded by astronomers that both of those planets had atmospheres and that conditions were generally such that there was the possibility of some sort of life existing on their surfaces. But the moon shows no evidence of this possibility when viewed through our super-telescopes. It has no atmosphere at all, or at least any atmosphere is so rare as to be negligible. The extremes of heat and cold further preclude the possibility of it being inhabited."

"Be that as it may, we have here some facts that can not be overlooked or contradicted."

Gary Walton tapped the several rolls of paper tape that reposed on his desk top. They had retired to Walton's office for a talk after almost thirty-six hours of continuous work in the research laboratory of the corporation whose engineering department was presided over by Gary. The rolls of tape contained messages in an unfamiliar dot and dash code.

"Yes, I know," replied the inventor. "Those messages were undoubtedly transmitted by intelligent beings, though we have no means of decoding them. It is comparatively easy to show that the code is a real means of communication, that there are thirty-seven separate characters recurring with varying frequency, and that nineteen of these characters are the same as certain of those used in Continental Morse. This should prove the existence of a language and a code foreign to our earth—the spaces between letters—the longer spaces between words, and all that. The world might easily believe that the messages come from another planet, but not from the moon—the body whose surface has been most closely examined and on which we are certain there is no life."

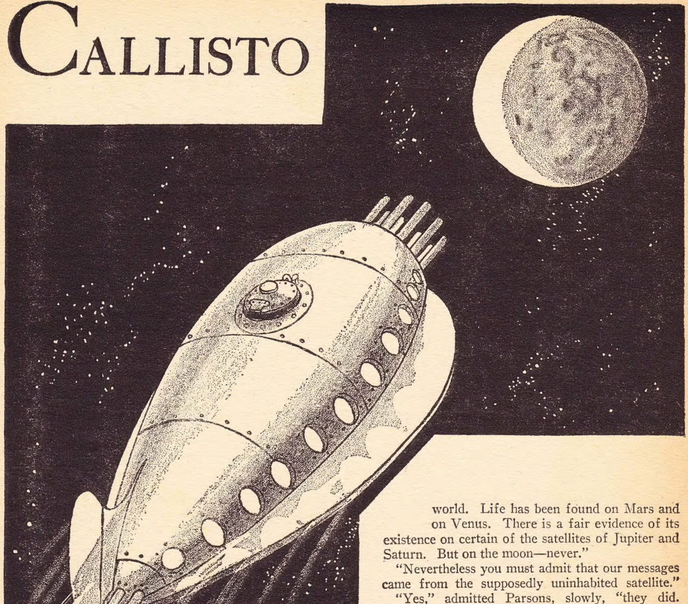
"But the readings of the direction finders?"

Ray's brow creased in perplexity. "That is the strange part of it," he said. "Our indications are definite. We have followed the signals for many hours and the shifting of our loops has kept constantly in line with our satellite. The signals can not have come from any other point, excepting by reflection."

"Reflection! Fiddlesticks!" snorted Walton. "You know as well as I do that such signals, if they could reach us from another planet by reflection from the moon, would also reach us directly and a line could be obtained on their original source with our direction finders. No, Ray, you are arguing against your own convictions. These signals come from the moon."

"But how? Doggone it, Gary, when Lesser invented the super-telescope in 1952, the first thing he examined was the surface of the moon. With the tremendous magnifying power it would be possible to see a sparrow on the moon's surface, but he saw nothing living. And nothing living has been observed in the fifteen years during which his instrument has been in use all over the

CALLISTO



The face of the moon was in shadow, but shone with a fair degree of brightness

world. Life has been found on Mars and on Venus. There is a fair evidence of its existence on certain of the satellites of Jupiter and Saturn. But on the moon—never."

"Nevertheless you must admit that our messages came from the supposedly uninhabited satellite."

"Yes," admitted Parsons, slowly, "they did. But, by all that's good and holy, I can't account for it. And neither can you."

The young inventor sat slouched in his chair, disheveled and weary. He was bewildered and disgruntled over the findings of the recent experiments in which he had requested the aid of the older man. True, they had proved to their own satisfaction the points they had set out to determine. Ray had reached a similar conclusion previously in his own workshop, but had hoped that the more powerful apparatus in the laboratory of the great organization, in whose New York headquarters he now sat, would show his original data to be erroneous. It was too preposterous! He would not dare to publish his findings on account of the storm of protest that would come from the great scientists with whom he was already at loggerheads. Suddenly he pulled himself up and laughed.

"By George, Gary," he said, "this thing has me cuckoo. But, as you say, I'm convinced of the correctness of our results. And I'm going to see for myself what's on the moon before I let the word out on these experiments."

"Through the telescope?"

"No siree. I'm going to go there and look around."

It was Gary Walton's turn to stare. "Going there?" he gasped, "How?"

"Haven't the slightest idea. But I'll build myself a ship of some kind that'll get me there."

"What's the advantage? We can already observe the surface as if from a distance of less than three hundred feet by means of our telescopes. Why run the risk of losing your life in some hare-brained attempt at shooting yourself there in a rocket or something like that?"

"Don't worry about me. If I start I am going to get there—and back. And I do expect to find something."

"Where? In some fancied underground realm?"

Ray laughed once more. "Now who's the kill-joy?" he inquired. "A few minutes ago you were on the other side of the argument."

The older man grinned. "Oh, go ahead," he said, "you'll have your own way no matter how much I argue. But promise me you will take me along."

"Sure thing. And I'm not joking about it, either."

"Neither am I."

They gripped hands solemnly.

"Now, what do you say we go home and knock off a little sleep?" suggested Walton.

"Best idea you've had since day before yesterday. Let's go."

They indulged in much good-natured banter as they washed up and prepared to leave the deserted building. It was well toward morning when Gary locked the door of his office behind them and they had a considerable wait for the night elevator to rise from the street floor to the ninety-fourth, on which the office and laboratory were located.

The night watchman was accustomed to the late comings and goings of the two, so he made no remarks regarding the lateness of the hour. But when, at the thirtieth floor or thereabouts, Ray let forth a yell like a Comanche, he was so startled that he let go of the controller handle.

"What's the matter?" asked Gary, in real concern.

"I've got it! By George, I've got it!"

"Got what?"

"The solution!" he babbled, excitedly. "What dumbbells we are not to have thought of it before. The other side—the other side of the moon. That's where the transmitter is."

"The other side?" said Gary blankly.

"Sure. We only see the side that is toward the earth and that is always the same. Who knows what is on the other side, the side that is always turned from us?"

The watchman gaped as the two capered like schoolboys and, when they left the elevator at the main floor, he scratched his head and watched as they scampered through the long hall to the exit of the building.

"Bug-house, the two of them," he said in deep conviction.

The "Meteor"

DURING the succeeding four months Gary Walton saw almost nothing of his friend and whenever he reached him by radiophone he was refused permission to visit the laboratory where Ray was so busily engaged.

"No, Gary old man," was the burden of his refrain, "I have some ideas of my own I am following in the construction of this ship, and I'm just not going to let anyone in on it until I'm sure it's going to come up to expectations."

"But, can't I help?" Gary would ask.

"Not a bit. Everything is going fine and there is nothing I need. So please quit worrying about it."

"But I'm getting anxious."

"I know you are," Ray would laugh, "but you won't have long to wait, and I can promise you something quite different from what you might expect."

Further argument proved useless in each case and Gary finally gave it up as a bad job. But he grew more impatient as time passed and when Ray ultimately notified him that all was in readiness he hastened to Grand Central Terminal and boarded the first train that would take him to the small hamlet in Monroe County where Ray's laboratory was located.

Ray Parsons was an unusual figure in the scientific world. At his graduation from college he had spent two years wandering about the world with nothing to do but play. Instead of playing, however, he seized the opportunity of visiting the great universities and research laboratories of Europe, there conferring with scientists of note and occasionally making a stop of several weeks to assist in some particularly interesting work that happened to be under way. The young man's wealth and ability found him a welcome abroad and he learned much during this period, incidentally contributing not a little of his own knowledge and downright genius. He was recalled to New York at the untimely death of his father and found himself an orphan, possessed of more riches than he knew what to do with. The money he promptly forgot, excepting as a means to an end, and he straightway set about indulging himself in his hobby—science. He equipped one of the finest private laboratories in the United States and, with a few assistants, buried himself in the work he had chosen. The succeeding ten years saw his rise to the position of an authority of note—an authority of such preeminence that he was continually subject to the critical and ofttimes caustic animadversions of the savants who envied him his notable accomplishments. But he remained unspoiled by praise and unperturbed by criticism.

Gary Walton mused on these things as his train sped northward. His own case was quite different. Reared in poverty, he had been forced to start working at an early age and had worked hard ever since. He was forty-six, just ten years older than Ray, and had already rolled up thirty years of experience that had begun with the clerkship in the office of the first organization to commercialize television-radio and bring it into the homes of the nation. From this small beginning he had struggled upward, growing up with the organization as it eventually merged with and obtained control of the wire and cable companies, the various broadcasting and commercial radio corporations, until it finally emerged as the sole owner and operator of all communication systems in use on earth. His experience, though in a specialized line, was highly valuable and the reward for his years of hard work and self-education came in the not to be despised position he now held.

When his train slowed down at the station he caught a glimpse of Ray's low-slung red roadster and the smile on the face of the inventor apprised him of the fact that another engineering triumph had been achieved.

"Welcome to our city," Ray greeted him, when he had swung across the platform and approached the car.

"Thanks," grunted Gary, feigning sarcasm, "I'm welcome now that the work is done, eh?"

"Not sore, are you?"

Ray's eyes twinkled. He knew that his friend hated being left out of anything until the last moment.

"Of course not—really. But you might at least have told me what you were doing."

He climbed in beside his grinning friend and they were soon rolling along the main thoroughfare of the town and headed for the outskirts.

The laboratory was a rambling group of buildings, some frame, some brick, and a few of moulded concrete. These were set well back from the road about a mile from town and were separated from the neighboring farm houses by broad rolling fields that comprised the property Ray had purchased after his father's demise. Gary noted that a considerable area to the rear of the buildings had been walled off by a high board-fence whose eight foot top was surmounted by several lines of glistening barbed wire.

"Got the ship well hidden, haven't you?" he commented as the car pulled up on the gravel drive alongside the new fence.

"You bet! And we're going to keep it hidden until we have all the dope on these strange messages. By the way, have there been any more?"

"Yes. Every five days, as regular as clockwork, they begin at midnight and transmit for one hour and twenty minutes. They seem to have a regular schedule now and I have a whole roomful of tape. Don't know what we are ever going to do with it all, unless we toss it out of the window when there is another hero-parade up Broadway."

"Well, we're going to learn who is working the transmitter up there on the moon, anyway."

Ray inserted his key in the lock of a heavy door in the fence as he spoke. When he swung this door open Gary gasped at what he saw at the near end of the enclosed field.

"Why, it's nothing but an airplane!" he exclaimed.

"With a few important differences," his friend conceded.

And the "Meteor," as Ray had christened the vessel, did indeed resemble a standard high speed enclosed plane. The body was some forty feet in length, torpedo-shaped and surmounted by a single wing-structure that seemed ridiculously small and of unusual thickness on the leading edge. Not more than twenty feet from wing tip to wing tip did this plane measure. The landing gear was not unusual, comprising the regulation rubber-tired wheels and tail skid. The tail structure was likewise of conventional design with fins and rudder that might have come from the shop of one of the standard airplane manufacturers. At the nose there showed the standard propeller of gleaming bakelite. The body was of polished metal with the exception of numerous circular windows that seemed to be of extremely thick glass. Surrounding the tapered tail and blunt nose of the body there were a number of cylinders of about six inches diameter and eight feet in length. These looked for all the world like the barrels of small cannon and gave the craft a warlike appearance. There was not a strut or a guy wire to mar the symmetry of the whole or to destroy the impression of indestructible rigidity presented by the sleek craft.

"Isn't she a beauty?" asked Ray enthusiastically.

"Sure is. But what makes it go?"

Thoroughly Equipped

THE short, rotund figure of an overalled man emerged from a circular hatch and dropped to the ground.

"Eddie Dowling," said Ray. "He's going with us."

"Fine business. Anyone else?"

"No, just we three." He turned and addressed the mechanic, "Come here, Eddie."

"Oh, hello Walton. I hear you're going with us."

This from the smiling-faced, chubby Dowling, who wiped his hands on a piece of cotton waste as he advanced.

"Hello, Eddie. Haven't seen you in a year. Yes, I'm going along—think we'll get there?" said Gary.

The smiling countenance became owlishly solemn. "Positively. Wait till you see this ship. She's a corker."

Dowling went to the shop for some tools and Ray and Gary climbed through the circular hatch into a small chamber inside the vessel. This chamber formed an air lock and communicated with the interior through a second circular hatch.

The center compartment of the Meteor was about fifteen feet in diameter and of approximately the same length between the partitions separating it from the other two sections. There was a periscope arrangement that provided an unobstructed view ahead and to the rear from the pilot's seat. The circular windows in the double cellular hull gave vision in all other directions. There were four bunks, two upper and two lower, besides two comfortably upholstered double seats and a small table that folded in beside the bunks. The rest of this chamber was cluttered with the controls and a mass of complicated mechanisms, most of which were entirely unfamiliar to Gary.

In the forward compartment there was the fifteen-cylinder radial engine and its fuel supply, the motor being of six hundred horsepower rating. The rear compartment contained the heating, refrigerating and air conditioning apparatus as well as the supply of provisions and other stores required in the trip. Altogether it was an over-crowded interior, though neat and orderly withal.

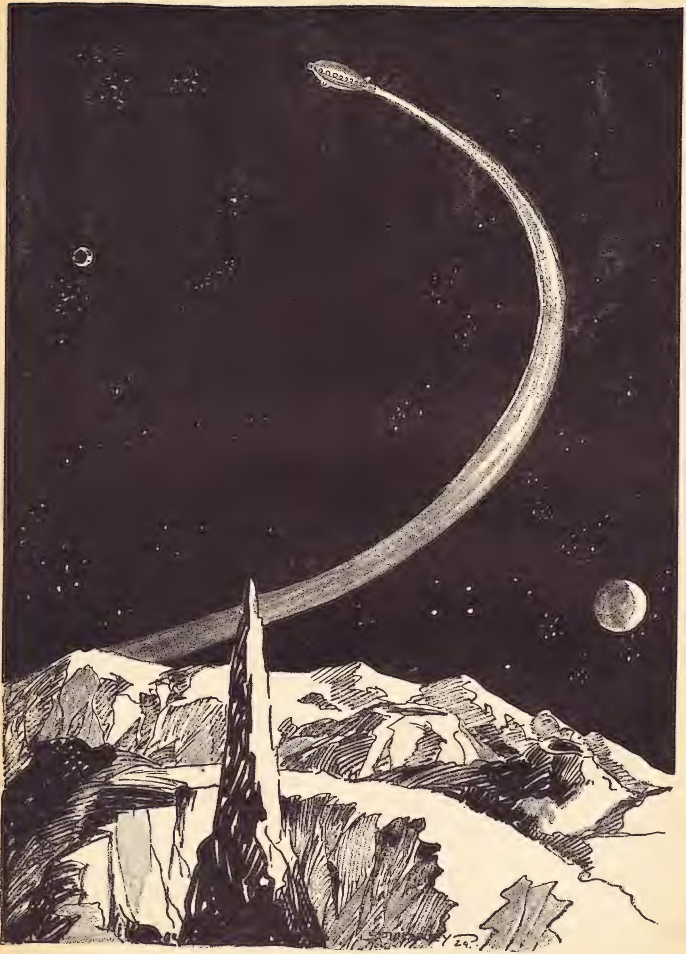
Ray pressed a button as Gary sank into the cushions of one of the divan-like seats. There was the whine of a motor coming up to speed and the engineer gazed inquiringly at his friend as a strange feeling crept over him.

"Stand up," Ray commanded with a twinkle in his eye.

And he laughed boyishly as Gary struggled against an unseen force in the effort to rise to his feet. It seemed that his weight had grown enormous and he was barely able to pull himself to an erect position.

"What in the world is this?" he asked in astonishment.

"Artificial gravity. You see, when we leave the immediate neighborhood of good old mother earth, her attraction will become less and less until eventually we would be floating about, unable to control our movements, were it not for this feature of the "Meteor" By its means we can maintain normal gravity when out in space. Here on earth your weight is just about



The panorama that spread before their eyes as the "Meteor" sped along at this altitude in response to Ray's manipulations was bizarre in the extreme doubled now. I also have a similar apparatus for overcoming the effects of acceleration and deceleration which might otherwise prove fatal to our bodily structure."

He cut off the energy and Gary sank to his feet with a sigh of relief.

"Why, that's wonderful, Ray," he said. "Something new?"

"No. I have been working on it for years and this is as far as I have gotten in the effort to discover means of nullifying our gravity. I can't seem to reverse the process."

"You are using your own fuel in the motor?"

"Yes indeed. The new concentrate that shows ninety thousand B.T.U. per pound. We have almost enough aboard to carry us around the world."

"But that will only carry us one-tenth of the way to the moon."

"Less than that, if we used it. But the motor will be used only while we are in the earth's atmosphere, so we have far more of the concentrate than we need. The propeller and wings are useless you know out in the near vacuum of space. There is nothing for them to work on. When we leave the atmosphere we shall depend on the rocket tubes—those cylinders surrounding the nose and tail."

"How do they operate?"

"By the reactive effect of successively fired charges of Parsonite, my super-explosive. And these tubes may be swung about in various directions so that we can steer the vessel and progress in any direction at will. They will also be used in landing on the moon's surface. If, as is supposed, there is little or no atmosphere, the wings and propeller would avail us nothing, so we will be compelled to retard the ship by means of properly directed discharges from the rocket tubes and thus land safely."

"But suppose there are living beings on the other side of the moon and that they attack us. Have you weapons and means of defense?"

"Absolutely. Of course we have no means of knowing what sort of weapons might be used against us but with a race of beings of great enough intelligence to make use of the powerful radio signals we picked up, it will likely be some form of destructive ray. The hull of the "Meteor" and the specially cast glass of the windows are proof against such attack. Of course if they use projectiles we are out of luck, but I hardly consider that likely. We likewise have several forms of destructive rays of our own, flame pistols, and a short wave projector that produces fusing heat in metal objects at a considerable distance."

"How can the flame pistols be used? We're not going to leave the "Meteor" when on the moon's surface, are we?"

"Surely. How else could we accomplish anything?"

"But how can we leave the ship if there is no atmosphere and if the temperature at night is some two hundred degrees below zero, as is estimated by astronomers?"

"Don't you know me better than that by this time?" Ray laughed. "Those things have all been anticipated. We'll leave through the air locked entrance and return the same way. There are three suits in the rear compartment that are air-tight and provided with oxygen helmets like diving suits. Woven in the materials of these suits there are innumerable fine wires that will pick up short wave energy broadcast from the "Meteor" and convert it into heat to keep us comfortable in the lunar cold. We'll have weapons in our belts and everything necessary, including miniature radios in the helmets so that we can converse up to a distance of a half mile."

"I give up," said Gary helplessly. "There is nothing you do not think of. And I can offer no further objections. When do we go?"

"Can you make it the day after tomorrow?"

"Sure thing. I'll return tonight and get things in shape at home, pack my bag and be here at whatever time you say."

"All right then. Suppose you take the early morning train and we'll figure on taking off at noon."

"Right. And how long is the trip going to take?"

"Some ten or eleven hours. Of course we can't say how long we might remain there, but better figure on being away no less than a week."

Ray chuckled at the expression of amazement that spread over Gary's lean features.

"Ten or eleven hours," he gasped. "How fast does the "Meteor" travel?"

"I calculate on a maximum of about fifty thousand miles an hour. We can accelerate gradually to this speed after leaving our atmosphere, then decelerate gradually with a resulting average of more than half of that speed."

Gary shook his head slowly. "Seems impossible," he said. "But I'll believe you, and will be Johnny-on-the-spot when the time comes."

The "Meteor" in Space

AT the appointed time the three adventurers ensconced themselves in the center compartment of the "Meteor," the outer hatch being bolted securely from the inside. There were no witnesses in the enclosed field and no news of their projected journey had leaked out to the press or news broadcasters. Everything was in readiness and Eddie Dowling mounted the pilot's seat with a grin that spread from ear to ear. He had piloted the ship on a trial the preceding evening and was so enthused and so anxious to get out of the upper reaches of the atmosphere that he could scarcely wait for Ray's signal to start.

In the view plate of the periscope there appeared the broad expanse of the field ahead and the high board fence at the far end, beyond which there was a clump of trees.

"Think she'll clear the woods with this load, Eddie?" asked Ray.

"Sure. Cleared it a mile last night, and there isn't five hundred pounds extra on board now."

"You should know. Let her go then."

"Right-o!"

Eddie yanked the starter lever as if he wished to pull it from its socket. There was a grinding roar up front, then the smooth purr of the motor. Faster and faster spun the propeller. Then he pulled another lever which released the brakes below them and they started rolling down the field. As the powerful motor picked up speed under full throttle, its exhaust gases being discharged almost noiselessly to the rear through the long pipes which hung beneath the streamlined body, they sped more and more swiftly until the tail was up. Then the wheels were clear and, with a sharp rise that carried them well over the fence and trees, they were off.

The "Meteor" climbed at a steep angle in Eddie's eagerness to gain altitude quickly and in less than five minutes the altimeter registered twenty thousand feet. Soon it showed thirty thousand feet, then forty and the speed of the motor had increased perceptibly while the ship seemed to be climbing more slowly.

"Air's getting pretty rare outside," Ray explained at Gary's questioning glance. "Pretty soon the propeller won't take hold at all and we'll have to use the rocket tubes."

It was the day of the new moon and, at the angle they climbed, its orb was visible in the periscope screen. They were heading directly for their destination. Before long the altimeter needle had reached the end of the scale and Ray placed in operation two instruments of his own design. These were distance and speed indicators which depended on the earth's attraction for their operation, rather than on the barometric pressure as in the case of the standard altimeter. So condensed were the scales of these instruments at the lower readings that the needles scarcely flickered with their comparatively slow speed and nearness to the earth. The stick and rudder-bar wobbled loosely at the touch of Eddie's hand and feet. The air resistance was approaching zero and the motor raced alarmingly.

"Cut the throttle, Eddie," ordered Ray, "and give her about a ten second burst from the rear rocket tubes."

The motor coughed and died. Eddie turned to a panel with a number of buttons arranged like the keys of a typewriter. He pressed five or six of these and there came a blast of rapid, staccato barks from the rear. Gary had a sensation of being suddenly thrown through space with tremendous velocity but this passed immediately as the acceleration compensating energy responded. He looked through one of the circular windows in the floor and exclaimed aloud at what he saw. The earth, which had but a moment previously been a huge bowl, was now a perfect globe of enormous size that receded rapidly as he watched. He could scarce drag his eyes from the marvelous sight, but turned quickly at a shout from Ray and Eddie. The speed indicator registered eight thousand miles an hour and the needle was moving steadily to the right over the scale whose highest graduation was at one hundred thousand miles an hour!

"Glory be!" shouted Eddie. "She's even faster than you figured, Chief. Man alive—we're traveling!"

"No wonder," said Ray drily. "You had the rockets on for nearly a half minute."

Eddie turned a crestfallen face toward them. "So I did," he admitted sheepishly. "Good thing the compensators worked so well."

So rapid was the acceleration with no air friction to retard it that, within the hour, they had reached a velocity of nearly thirty thousand miles an hour. The trip would be completed much sooner than Ray had anticipated.

Gary watched spellbound as the earth receded and the moon grew larger and nearer. He experienced a curious feeling of detachment as the great gleaming sphere that was their world took on a green luminescence that shone eerily against the blackness of the firmament whose stars presented the entirely new aspect of glowing brilliantly without the accustomed twinkle caused by motions of an intervening atmosphere. Ahead and to the left, the sun was a blinding blaze of magnificence, shooting great streamers of flame far into space in every direction. The moon, several times larger than it appeared from the earth, now showed a bright, pencil-line crescent as the triangle formed by their ship, the sun, and the moon grew smaller and the angles slowly altered.

The face of the moon was in shadow but shone with a fair degree of brightness by light reflected from the earth. But so brilliant was the sun-lit crescent at the left edge that the face seemed almost wholly dark by comparison. And steadily it drew closer.

Their speed had become constant at about thirty-five thousand miles an hour and Ray started experimenting with the tail rockets. He pressed a couple of the control buttons for an instant and the resulting discharges swung the needle well over the fifty thousand mark. Another touch and it reached seventy. They were traveling at more than a thousand miles a minute! And the interior of the "Meteor" was as comfortable and as normal as regards temperature, air quality and gravity as if they were flying at ordinary speed and altitude over the surface of the earth.

"Guess I was very conservative in my estimates," said Ray, "and I believe I know where I made an error. Parsonite, you know, when it is exploded on earth, produces about four million times its own volume in expanding gases. But out here in the vacuum the specific volume of the gas is vastly greater and that makes a difference. In my calculations, of course, I considered the weight of the discharged gases and that does not change with the lowering in pressure. But the greater volume must have considerable effect since, at each explosion, we leave behind a far larger cloud against which to react. This larger cloud, while of the same weight, must have considerably greater instantaneous inertia."

"Exactly what I thought," grinned Eddie.

"Oh, of course, that is a foolish explanation, in violation of the simple law of Newton," said Ray. "The real reason for the higher speed is that a higher muzzle velocity is obtained in the rocket tubes due to the expanding of the gases to a lower pressure."

"At any rate," Gary interjected, "we are getting there pretty fast."

He had cast a glance at the instrument board and noticed that the distance from the earth was now well over 170 thousand miles. And they were scarcely three hours out!

"Yes," agreed Ray, "and it will soon be time for a change in direction."

When they had reached the 200 thousand mile mark and the moon appeared as large before them as did the earth behind, Ray took the controls. He swung a small lever over the face of a graduated quadrant and pressed a single button of the rocket-control keyboard. There were a few rapid, machine gun-like reports from the rear and the moon's image swung well to the left of the periscope screen.

"We'll pass it on the shadowed side," he stated.

Sun and moon were both visible through the circular windows now and it was not long until the moon's disc bit into the right side of the flaming orb and slowly started crossing. They were producing an eclipse all their own and it was a vastly different one from those witnessed on earth. The apparent diameter of the moon was now so immense that it gradually swallowed up the sun and its long flaming streamers as well. When they were in exact opposition with the two bodies, the "Meteor" was plunged into a baleful green semi-darkness, the sole illumination being by light reflected from the earth and by that of the earth re-reflected from the surface of the moon. The firmament became of ebon blackness, the brilliant points of light that were the stars and planets contributing but little to the light that streamed through their circular windows.

Then the first wavering tips of the sun's great prominences started to appear on the other side and the brilliant orb was soon in full view once more. Another twenty minutes and a crescent of brightness appeared at the moon's edge and this widened rapidly as the "Meteor" dashed through space with its speed still unchecked. The lunar orb was half illuminated and the distance from earth showed 236 thousand miles before Ray manipulated the control buttons of the forward rocket tubes. They were passing the moon at a distance of about five thousand miles and it was of colossal size in their vision.

In the Path of a Beam of Waves

RAY pressed fully half the keys on the small panel, putting all the rocket tubes at the nose in operation. Time and again he pressed the same group for a period of ten or fifteen seconds and at each pressure there was a responding rat-tat-tat and a momentary sensation of being thrown forward in the ship. The compensators worked beautifully, however, and they experienced not the slightest discomfort at the tremendous rate of deceleration. In a very short time they had considerably overshot their destination and the needle of the speed indicator had dropped well toward zero. Ray played the keyboard now like a piano and the heavens rotated before them as the "Meteor" swung around in the arc of a huge circle. Another few minutes and the sun was almost directly overhead with the lighted surface of the moon just beneath. They were looking at its other side.

From a position estimated by Ray as about two thousand miles above the surface it was quite apparent that the side they had never seen was mightily different from the face presented toward the earth. There were a multitude of the familiar craters, several of these being even larger than Ptolmey and Copernicus. But the greater portion of the surface which now hid the earth from view was occupied by huge areas resembling the Mare Serenitatis and the Mare Tranquilitatis but of prodigious extent and deeply depressed rather than presenting comparatively level surfaces, thus more deserving of being termed seas. From the close range the craters seemed quite likely to have been formed by the impact of meteorites when the moon was in a plastic state, as suggested by Gilbert. An intricate network of rays and rills interconnected the numerous craters and the seas, the rays gleaming with the blue-white color of polished cobalt and the rills revealing themselves as lengthy chasms and cracks of unspeakable depth. The visitors were on their knees, observing through the floor windows this marvel of creation never before seen by earthly eyes.

A touch of a button had headed the "Meteor" in the same direction followed by the moon in its orbit and they now seemed to be hanging motionless above its surface. Actually they were traveling in space at the same speed and over the same course as the earth's satellite.

"It's a wonderful sight, boys," said Gary solemnly.

"Marvelous," agreed Ray.

"You said something," came from Eddie.

Ray fussed with the small levers that swung the rocket tubes out radially from the hull. He pressed two of the control keys and there came a few sharp raps from overhead, both forward and to the rear. The moon seemed to leap upward to meet them and Ray manipulated various other buttons rapidly. By alternating between upper and lower tubes, he soon maneuvered the vessel to within ten or fifteen miles of the surface.

The panorama that spread before their eyes as the "Meteor" sped along at this altitude in response to Ray's further manipulations was bizarre in the extreme. They crossed a crater of fully 150 miles diameter and whose depth was no less than five miles. In the exact center of this crater there rose a slender spire of deep green hue that reached a height of probably six or seven miles above the crater's bottom. A lofty mountain range loomed ahead as they crossed the far rim of the crater—perpendicular peaks lifted their pointed finials to unconscionable altitudes.

Eddie busied himself with the mechanism of a camera which was set flush with the floor, its lens mounted outside on the bottom of the hull. The shutter clicked incessantly as he replaced roll after roll of exposed film with fresh. Ray kept constant watch of his instruments and occasionally fired a light rocket charge below to maintain their altitude and direction of travel. Gary's optics were working overtime as they dropped to two thousand feet.

The manometer showed no atmospheric pressure outside the ship and the stopping of the heat generators and starting of the refrigerating motors caused Ray to glance at the thermometer that recorded outside temperature. It was near the boiling point!

"It is just about noon of the long lunar day," said Ray.

"Then there are about fourteen of our days to pass before there will be darkness at this point?" inquired Gary.

"That's right. And it's going to be good and hot out there in the sun as long as we're near the surface. Probably be quite a bit cooler in shadow, though, and when we leave the ship we'll have to keep to the shadows to keep from boiling."

"Are there no means of cooling the air-tight suits?"

"None. But that doesn't worry me. If we can't live in the direct rays of the sun, neither can the other fellow. We'll find them in deep shade."

"Where are you going to find any shadows with the sun almost directly overhead?"

"In the larger rills at great depth or possibly under overhanging ledges at the shores of the great seas."

They now followed a ledge that shone beneath them like a vein of pure silver. They were to discover later that it was nearly unadulterated cobalt. This ledge led them through an almost level valley, fringed on both sides by the greenish spires whose material proved subsequently to be nephrite.

After an hour of travel in this manner they came to the immense bowl that was the largest of the seas they had observed from far above. It was an enormous depression and, as they crossed the near rim, it seemed they had come to the edge of the moon for the great barren concavity was as deep as fifty miles or more in spots within their range of vision. A steep, overhanging precipice marked its rim and they skirted this at moderate speed, examining the streaked wall carefully for signs of life.

Ray tuned in the radio to the wave-length on which they had received the messages back there in New York.

He clapped the phones to his ears and listened intently. There were no signals, but a continual musical hum of perhaps a hundred cycles frequency assailed his ear-drums. This rose and fell in volume like a fading signal but he had no way of determining from whence it came.

For two hours more they skirted the multi-colored precipice, slowing down occasionally to peer closely at strange formations that had, from a greater distance, resembled human dwellings. But there was still no sign of life.

Eddie had taken numerous photographs and he desisted from the work as the sameness of the view became all too apparent.

"We'll have lots of evidence when we get back, Chief," he smiled.

"Yes, and we'll need it, if we find no more than we have found so far in the way of a lunar radio transmitter. Wonder where the devil it is."

Noting that it was nearing midnight by earth time, he replaced the headphones of the radio.

"Hum's gone now," he muttered.

Then he and the two other passengers were electrified by the shrill, penetrating note of continuous wave code signals that came in so loudly as to be heard throughout the compartment. Ray hastily removed the phones to save his ear-drums.

"Boy! They must be close!" he exclaimed. "Either that or it is an extremely powerful transmitter, which of course it must be if it was used to communicate with one of the other planets."

"Look!" shouted Gary suddenly, from his position at one of the windows. "There it is! Ahead there to the left."

His companions peered in the direction indicated and, at the top of the cliff not a mile ahead, they saw large fan-shaped structures topping two tall metal towers. The strands of this odd antenna reflected the sun's unobstructed rays with the unmistakable reddish hue of copper wires or tubing.

"No wonder it nearly knocked my ears off," said Ray, turning off the current that fed the tubes of the radio.

He nosed the ship downward with a few carefully directed shots from the tubes and they dove into the shadow of the cliff. At first the darkness seemed to be intense but there was really a considerable amount of reflected light from the neighboring sun-lit surfaces of the arid sea bottom. As their eyes became used to the sudden change from the brilliance of the lunar mid-day to the twilight of this shaded region they made out a strange village ahead. It looked like the "tank farm" of an oil refinery back home. Fully forty large metallic cylinders reared themselves from the level bottom at the base of the cliffs and these were of unmistakably human design and construction. As they drew nearer they made out the forms of several bipeds who moved in and out between the habitations, walking erect in the same manner as humans of the earth.

The first sign of life!

The Pursuing Lunarians

IT was necessary to fire an occasional light rocket charge and in each case the luminous gases of the explosion lighted the shaded area like a flash of lightning. It was thus but a short time until their presence was revealed to the lunar inhabitants. A great many of these tumbled from the doors of the circular dwellings and they milled about and gesticulated excitedly over the unexpected appearance of the strange ship.

On closer view it was seen that these beings were accoutered in garments very similar to those that reposed in the lockers of the rear compartment of the "Meteor." The suits, also of pliable material, bulged ludicrously in the vacuum under pressure of the air from within and each figure was topped by an egg-shaped helmet of shiny metal.

It was difficult to maintain the position of the "Meteor" without traveling at considerable speed, for the craft bobbed about uncertainly under the influence of successive charges fired from the tubes. Ray decided to make a landing and he maneuvered the vessel to a point about a mile from the village and there dropped to the surface. At their contact there arose a cloud of gray powder that cut off their view for several minutes. With the subsequent raising of the cloud they saw that a group of the Lunarians were approaching them with great speed. progressed in leaps that carried them thirty or forty feet at each jump. Evidently they hailed from another body in the solar system—a body whose gravity was nearly equivalent to that of the earth, assuming the physical strength of these beings to be about equal to that of the Tellurians.

When the more curious of the beings had approached within a hundred feet of the "Meteor" they formed a semicircle and it was seen at once that each of the members of the party carried a slender rod of about four feet length, these rods being equipped with bulbous protuberances and presenting the appearance of weapons. Like a company of well-trained soldiers they raised the peculiar small arms and directed them at the "Meteor."

"Hope our insulating envelope holds out," remarked Ray. "Those are quite evidently ray projectors of some sort."

At his words there came a blinding flare from each of the rods and their bodies were subjected to a stinging, prickling sensation that betokened a heavily charged atmosphere within the vessel. The light flashes that converged on the outer surface of the staunch craft seemed to have no other effect and Eddie whooped with glee when they saw that the Lunarians were mystified at the failure of their attack.

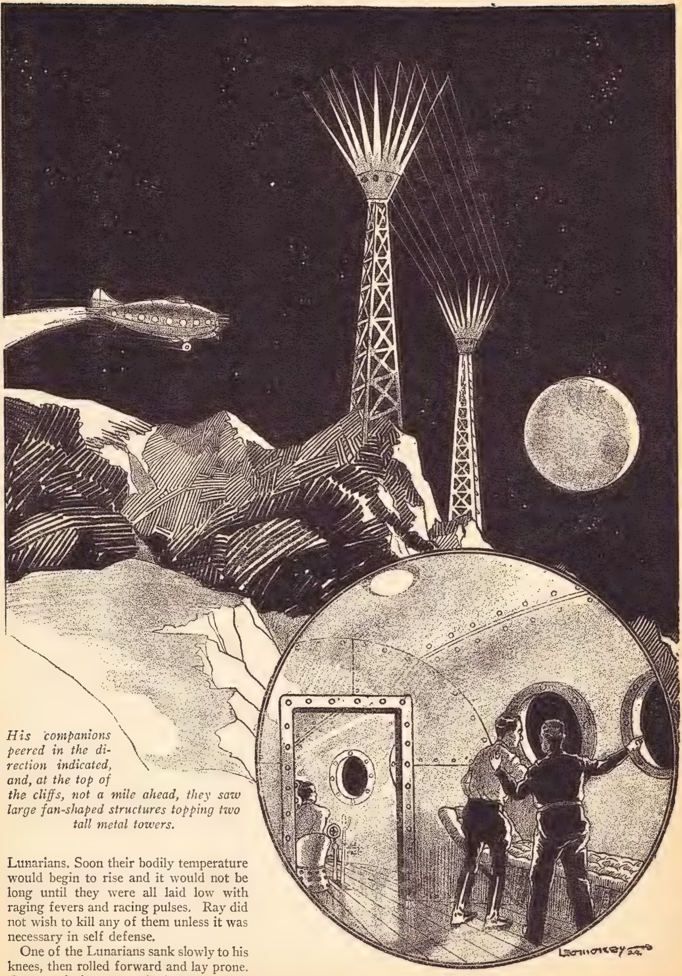
There came another burst of the blinding flashes after a moment and the "Meteor" lurched and tilted at an alarming angle as one of the rays took effect on the landing gear.

"Say!" exclaimed Ray. "This will never do! Suppose they shoot away our wings and landing gear entirely? We'll have some trouble in landing when we return to earth. I'm going to try the short waves on them."

He advanced to a powerful high-frequency transmitter and started its motor generator. The tubes glowed instant response and Ray swung a lever on the panel of the transmitter slowly from left to right, watching the enemy meanwhile.

"Just warming them up a bit," he explained to Gary. "Watch!"

That little transmitter, by conduction through the ether, was inducing high-frequency currents of nearly a million alternations per second in the bodies of the



His companions peered in the direction indicated, and, at the top of the cliffs, not a mile ahead, they saw large fan-shaped structures topping two tall metal towers.

Lunarians. Soon their bodily temperature would begin to rise and it would not be long until they were all laid low with raging fevers and racing pulses. Ray did not wish to kill any of them unless it was necessary in self defense.

One of the Lunarians sank slowly to his knees, then rolled forward and lay prone. Others of them moved about in a bewildered manner as if searching for the cause of their sudden illness. Another dropped, then two more and, in less time than it takes to tell, they lay helpless in the heavy dust.

"Now," said Ray, "we'll go out and look them over. Our own suits are insulated against these vibrations."

Hastily they donned the heavy suits and globular helmets. Ray showed Gary how to adjust the oxygen apparatus and how to operate the various instruments that hung from the outside belt. One of these was the flame pistol with which Gary was already slightly familiar. They entered the air lock and bolted the inner hatch. Then Eddie unbolted the outer hatch and they plainly heard the hiss of the escaping air.

Eddie was first to drop into the thick powder that carpeted the ground and he took the first experimental step, tumbling into a ludicrous heap as he lost his balance in the eight-foot spring that resulted from his slight effort. It would require a little time for them to become accustomed to moving about in a gravity field only one-sixth as strong as their own.

They shuffled through the powdery footing until they reached the outstretched lunarians. Gary kneeled over one of the prostrate forms and peered through the single window of his helmet. He recoiled at the look of hate that flashed through from the bloodshot eyes of the helpless being. But the fevered face that looked out at him was unmistakably human. With the exception of the slightly purpled skin that was probably caused by the artificially produced fever, this man might have been one of the millions that inhabited his home city on earth. The phones in his helmet spoke loudly and he gazed up, startled at the voice of Ray that seemed to come from so close by. He was astonished at seeing the ballooned figure of his friend fully a hundred feet from him. Then he remembered the helmet radios.

"Gary," came the voice, "these people are just like our own in features and in stature."

"Yes. It seems incredible."

A sharp cry in Eddie's voice startled them both and they were still further astonished when they looked in the direction pointed to by his bloated, outstretched arm in its bulging enclosure.

About five hundred yards away, out of reach of the vibrations from the "Meteor" that still charged the ether, five of the lunarians were chasing a sixth figure—one of their own kind. From the smaller stature and shorter leaps of the fugitive, they deduced that it was a woman, and when this one stumbled, falling heavily in the dust and burying the huge helmet in folded arms, they felt more than certain.

At that moment the pursuers caught sight of the round-helmeted strangers, the strange ship, and the prostrate forms of their own kind. They stopped short and two of them raised rods similar to those carried by the helpless victims at their feet. Eddie was nearest in line and the two flashes from the raised weapons converged in his direction. Instinctively he dodged and the impetus of his movement threw him fifteen feet from the line of fire. In a rage he grasped the flame pistol that depended from his belt and trained it on the Lunarians. There was a brilliant spurt of scarlet and one of the attackers was consumed in the angry flame that struck him full in the chest. Before the other could again bring his own weapon into play he, too, fell a victim to the angry Eddie. The oxygen in their own suits made brilliant torches of the two Lunarians as the deadly flame got in its work. The other three were unarmed and they fled precipitately in the direction of the village, leaving the erstwhile fugitive still cowering in the dust.

The three Tellurians advanced to the crumpled figure, which shrank from them as they drew near. Eddie placed his helmet close to the larger egg-shaped one and looked through the two intervening windows.

"Christopher!" he exclaimed. "It's a girl! And a peach!"

By pantomime they convinced her they would not harm her and eventually got her to her feet and indicated their desire to take her within their vessel. After a considerable amount of gesturing and nodding and bowing on both sides she finally accompanied them willingly, and they noticed that she shrank in alarm from the prostrate figures of her compatriots.

In a few minutes they were all four in the air-locked entrance of the "Meteor" and, when Eddie had bolted the outer hatch, they heard the welcome hiss of air entering the chamber from the pumps in the rear compartment. No sooner were they within when the girl tore her helmet from her head and threw it to the floor.

They fell back, amazed at the wild beauty that confronted them.

Communicating by Pictures

THE torrent of speech that assailed their ears might well have been a pæan of praise, so softly and smoothly did the unfamiliar syllables of her euphonic language roll from her tongue. But the fire that glinted in the wondrous brown eyes and the gestures with which she supplemented the unintelligible dissertation told them she was berating her recent pursuers. With their helmets in hand the three men listened politely, but with expressions of such bewildered indetermination that the girl broke off and stared from one to the other for a moment. Then she burst into laughter—peal after peal of contagious merriment rang through the narrow confines of the "Meteor." The ice was broken.

Indicating her own person with a sweeping gesture and a bow, the girl uttered a single word, "Lola."

Gary completed the introduction by naming his two friends and himself. The three derived much amusement from her efforts at reproducing his pronunciation of Eddie and Gary. With the single syllable, Ray, she had no difficulty.

The men removed their cumbersome suits and she proceeded to do likewise. When she was revealed in a snugly fitting, silver-hued garment that would have created a furore on one of their bathing beaches at home, they exchanged embarrassed glances. But the girl seemed entirely at ease and unabashed.

It was soon evident that Lola was an extremely intelligent girl, for she immediately realized that explanations could be made only by signs and drawings. She pointed to a wall chart of the earth and nodded brightly to show that she knew what it represented. By going through the motions of sketching she indicated that she desired to be supplied with drawing materials, and she exclaimed delightedly when Ray handed her a pad of paper and a pencil. She examined both as if they were somewhat strange to her, but, after experimenting with the pencil a bit, she started drawing a series of concentric circles on the paper. In the center she drew a small circle which she speedily shaded to represent a sphere. Then on each of the concentric circles she placed another sphere of smaller size.

"By George!" exclaimed Ray. "She's drawing the solar system."

This was confirmed at once by Lola, who pointed again to the wall chart, then to the sphere on the third concentric circle she had drawn.

"Tora," she averred confidently. Then hesitatingly, "Ray, Ed-dee, Gair-ree—meer Tora."

"She knows we are from the earth," gasped Ray, "and her name for our planet is Tora."

Lola then pointed to the sphere on her fifth concentric circle and rapidly marked nine small dots at varying distances from this globe.

"The nine satellites of Jupiter!" exclaimed Ray.

She pointed to the fifth dot from the sphere, then to herself, intoning solemnly, "Lola—meer Thares."

"Callisto," said Ray, "the satellite of more than three thousand miles diameter whose distance from Jupiter is one and a third million miles. The girl is from Callisto, or Thares, as she calls it."

"But," objected Gary, "she seems to be at home in our earth gravity as simulated in the "Meteor"—she was able to leap twenty or more feet on the moon's surface. How can that be if the satellite she hails from is so much smaller than our earth?"

"The smaller body might still have a similar surface gravity," Ray explained. "Since the kinship of gravity and magnetism was proved, our older estimates based on the mass of a body have been thrown into the discard in many instances. It may well be that this satellite has a gravity equivalent to our own."

Seeing that her efforts were bringing understanding, she tore the first sheet from the pad and started sketching on the second sheet. This girl from the distant satellite was an artist. By the use of a very few strokes she was able to produce wonderful likenesses of human beings, machines, buildings. She first drew a king seated on a throne; then his consort, a beautiful woman. At their feet she drew a child—a girl of perhaps ten years of age whom she called Lola. Their visitor was a princess! She studied their faces and beheld astonished comprehension. Then she drew even more rapidly, using sheet after sheet of the paper as she warmed to the task. Her sketches formed a picture history of her own life and of the peoples of her own world. She pictured scientific advances made by two separate and distinct races of beings, the one clan being dark-haired like herself, the other seemingly of larger stature and extremely blond. The overthrow of the government and the assassination of her parents she wept over. The plans of the light-haired ones she pictured vividly, showing that their astronomers were cognizant of the desirability of the earth as a field for conquest. She sketched spaceships of huge size with which the journey was to be made and indicated the plans for using the earth's satellite as a near-by base for hostile operations. Her own kidnaping by the leader of the warlike blond horde she stormed over, finally ending the story with her escape and subsequent release from her tormentors by the earth men.

When she had finished, she turned a happy face to the three men who had watched so silently and admiringly.

"Well, I'll be hornswoggled!" said Eddie. "There's the whole story for us. These doggoned Calisthenics, or whatever you want to call them, are figuring on busting us up back home. Can you beat that for nerve?"

Ray and Gary grinned at his explosive remarks and the silvery laugh of Lola once more brightened the interior of the "Meteor" when she observed the comical expression of consternation that spread over the chubby face of the mechanic.

"All the same," said Ray, "this is a serious matter and I am going to try and learn more from Lola, though I am afraid my own efforts at picture-writing will not be as successful. Meanwhile I think we should repair the landing gear and disarm the helpless Callistonians outside before we release them."

"Right, Chief," said Eddie. "I'll get out the welding outfit and take care of it right away."

He soon had the apparatus ready and again drew on his air-tight suit. Before he clamped the helmet in place he cast an admiring look at the sleek blackness of Lola's close-cropped tresses, where she bent over Ray's initial attempt at imitating her method of communicating by means of pictures.

But Ray's efforts proved successful, due to the keen perception of the girl and to occasional help from Gary. They learned that the lunar base had been in existence only a short time, less than one revolution of the earth about the sun. Lola's eyes glowed at the pictures of peace, prosperity and happiness on earth that Ray did his best to represent. She signified her joy at being within the "Meteor" and her wish to return to the earth with them. It developed that nearly two years were to be required in which to complete the fleet of space ships and to establish the lunar base of operations. Ray indicated his intention of returning to the earth and preparing its peoples for the warfare to come, even suggesting the possibility of building a fleet of their own to visit first the moon, then the satellite Callisto, destroying the base and then carrying the war to her own world with the express intention of overthrowing the power of the light-haired ones and restoring Lola's own loved ones to their birthright of freedom and happiness. His proposals met enthusiastic approval and by the time Eddie returned with an armful of the enemy's ray projectors, a complete understanding had been reached.

"All fixed, Chief," said Eddie, when he had removed his helmet and pushed the slender weapons under one of the bunks. "The wheel was not damaged. Neither was the axle. They had only burnt off one of the struts and that was easy. It's as good as new now."

"Fine. And now we'll release those poor devils out there."

He pulled the switch that controlled the energy used to overcome them. Lola did not realize the meaning of this action, but when the men glued their eyes to the windows and watched the prostrate figures of the enemies, she knew that the strange instrument in the "Meteor" had something to do with their condition. When one of them commenced moving about and eventually sat upright, she registered a vigorous protest, and there was no misunderstanding the warning note in her voice, though the words were unintelligible. She hastened to employ the sketch pad once more, but before she was able to bring her talent to further use, there came a surprised cry from Eddie.

"Holy smoke!" he exclaimed. "Here comes a tank!"

An armored caterpillar tractor was bearing down on them from the direction of the village, and most of the recently helpless Callistonians were now on their feet and hailing the approaching war machine with joyful leaps and wavings of the arms. As the monster engine neared them, a ray of shimmering yellow shot forth from its fore part and impinged on the hull of the "Meteor."

Lola screamed as the vessel was surrounded by impenetrable darkness, but Ray reassured her smilingly. He was confident of the efficacy of the "Meteor's" insulating envelope. But he decided to get out of range of the ray on account of the possibility of it causing damage to the outer structure, so he advanced to the rocket control keyboard and pressed a few of the buttons.

There was no response! And the temperature in the "Meteor" was rising rapidly!

A Callistonian Sphere

"WHAT sort of a bombardment is this?" asked Ray in astonishment. "These must be vibrations of a sort I have never encountered. Our electrical system is paralyzed."

He worked frantically with the keys, but to no avail. The darkness persisted and the temperature continued to rise, though the refrigerating system was working to capacity. He pondered for a moment as Gary and Eddie attempted to calm the now greatly perturbed Lola. She was endeavoring to convey a message to them, but in the excitement of the moment was unable to do so.

"I have it!" Ray suddenly shouted. "Quick, Eddie—the emergency lights! We'll fire the rockets with their batteries."

They hastily dismantled the battery boxes of two of the equipments that had been included in the accoutrements of the "Meteor" on the chance of exploring dark caverns during the visit. They soon had two sets of powerful dry cells and quickly set about tearing at the moulding in which were hidden the ignition wires of the rocket tubes. Perspiration poured from their skin as the heat increased, but they worked with unabated energy. Finally the proper wires were located and small sections of insulation were stripped from the copper.

"Now," breathed Ray, "when I give the word, make contact with the battery terminals. Just two short taps on the binding posts. Ready?"

"Ready, Chief," panted Eddie.

Lola and Gary had sunk to their seats, gasping painfully in the superheated atmosphere.

"Now!" said Ray, whose throat was so dry he could scarcely speak.

There were a number of answering raps from below and the two men collapsed where they crouched. The "Meteor" sped from its position with tremendous velocity and was instantly in the glare of the sun. Brilliant beams of its light streamed through the circular windows, as the vessel rose far from the moon's surface, but there were none to observe the cheering sight. Lola and the three men had lost consciousness. But the pumps in the rear compartment continued their whirring and the temperature dropped rapidly. Luckily the refrigerating system was operated from tanks of compressed air and had not ceased functioning when the electrical system was paralyzed by the baleful ray of the Callistonians.

Eddie was first to recover and he stared about him wonderingly as he sat up. For a minute he ruminated dazedly, then he remembered and quickly sprang to his feet.

"Oh, boy!" he drawled, "was that a close one? Another minute and the 'Meteor' would have been a fine cemetery."

He rushed to the side of Lola and rubbed her wrists frantically. So marble-white was her skin that he feared she was dead. But he soon whooped his relief as her eyelids fluttered and she drew a long, tremulous breath. Ray and Gary recovered at about the same time.

"Well," said Ray, when he was able to speak, "that was one I didn't count on. And we got out just in time—no question of that."

He looked through the lower windows and observed that they were fully five hundred miles from the moon.

"But we have a ray of our own," he continued grimly, "and I'm going back and I'll give them a dose of their own medicine."

An experimental touch on the keyboard showed that the connections were once more functioning. He pressed several of the keys and they dropped rapidly as the rat-tat of the rocket charges answered. Lola objected strenuously as she saw the ill-omened satellite rushing upward to meet them. She wanted never to return to the place of her most recent sufferings. But Eddie's good-natured smile and assured manner soon reconciled her.

The "Meteor" dropped to within a few hundred feet of its recent position and they were astonished to see that the war machine of the Callistonians had been overturned by the blast from their own rocket tubes. Eddie loaded the camera and made a few more exposures.

Half buried in the powdery footing there were the bodies of a number of the helmeted Callistonians who had been slain in the sudden hurricane resulting from the escape of the "Meteor." The state of collapse of their garments told of the reason for their passing. The force of the concussion had torn the air-tight coverings, allowing the oxygen to escape from within and thus suffocating the victims. Not an enemy was in sight and Ray headed for their village. Again he was warned by Lola, but he circled the settlement, looking for signs of life. The girl was extremely nervous and they had not long to wait for the reason for her fear. From a number of the cylindrical structures there shot forth duplicates of the ray that had nearly proved their undoing. But the "Meteor" darted hither and thither as Ray manipulated the control keys and it was impossible for the enemy to keep them in range for a long enough time to produce any effect.

Then there came a surprise, for the "Meteor" halted in her rapid movements and was drawn upward by a new and irresistible force. At a quick glance through one of the top windows, Lola cried out in fresh alarm. She had indicated that none of the space ships from Callisto were on the earth's satillite. But one had evidently returned in time to witness the maneuverings of the "Meteor," for high above them hovered a gigantic sphere of polished metal from which depended two large discs like the electromagnets used in the electric cranes on earth. From these it was apparent the force emanated which was drawing them helplessly aloft.

"Fne kettle of fish!" yelped Eddie. "What to do?"

"We'll try the high-frequency beam on them," replied Ray, leaving the controls.

Lola sat quietly by, an expression of resigned expectation of calamity on her beautiful features.

They started the generators as the rapidity of rise increased and soon the powerful vibrations of the fusing beam were searching the vitals of the great sphere above them. But there was no immediate result and in less than a minute they were thrown to the floor by the heavy jar of striking against the metal discs. They were firmly attached and the discs immediately commenced drawing upward as the cables attached to them were reeled in from above. They were to be brought very close for destruction.

Lola hid her face in despair.

"Can't seem to find a vital spot," grunted Ray, "or else the ship is insulated as we are. But we should be able to fuse away some of the outer covering."

He continued the exploring as a party of helmeted Callistonians dropped from a hatch to the upper surface of the Meteor. Their clumsy metal shoes produced a noisy tattoo as they moved about with a heavy piece of machinery which they set up amidships of the top surface of the hull.

"They are about to drill through," groaned Gary.

"Don't worry," said Ray; "we'll stop that."

He started the other transmitter and the vibrations which had overcome the attackers on the surface were at work above. Still he continued with the searching motion of the fusing beam. The sounds above were stilled and they soon heard a body fall to the curved surface, then another and another. Two of the stricken Callistonians slid past a window and slithered over the side, to fall to their death in the village far underneath. Then one of the attracting discs let go and the "Meteor" dropped to an almost perpendicular position, throwing the occupants into a heap against the front partition.

"Got one of their generators!" exulted Ray, crawling back to his beam controls. "Now for the other."

"Yes, and all those birds that were on top are gone," gloated Eddie.

But the weaving beam failed to produce results and Ray finally concentrated it on a protuberance of the immense vessel to which they were attached. There was an almost immediate effect, a small opening fusing through the metal and quickly spreading until a large section of the protuberance had melted and dripped into the depths beneath. There came a quick jerk and the moon's surface receded rapidly as the pilot of the enemy vessel attempted a retreat, not thinking to cast off the barnacle that was causing the damage. And the unwieldy sphere was speedy, for they were soon at a tremendous distance from the previous position. A gaping hole now appeared where the protuberance had existed and the occupants of the "Meteor" knew that the air was escaping from the monstrous vessel above.

Then there was another jerk and the motion of the larger vessel changed to a wobbly, reeling progression that betokened disaster. Apparently its crew had been suffocated and the machinery was out of control. The "Meteor" was doomed to go hurtling through space, an unwilling dangler from the unpiloted vagabond of space!

Ray tried a terrific rocket blast without effect. The energy that had trapped them was too powerful to be thus overcome. Then he experimented with various keys and the direction levers until, with a continuous blast from a single tube, he had swung the "Meteor" about until it lay alongside the spherical hull of the larger ship and he could obtain a view of the supports and feeders of the attracting disc. The fusing beam was then concentrated on the cable fastenings and in a moment they were free, the "Meteor" roaring away from the wandering sphere under the impulses from the single rocket.

"That's that," said Ray, wiping the perspiration from his brow. "I think we had better start for home now before something else happens."

"You said something," agreed Eddie enthusiastically.

Lola trilled her happiness when their intentions were made known to her. And Gary was far from sorry.

The "Meteor" Plans a Return

WITH the shadowed side of the moon behind them and the shining greenish orb that was the earth ahead, Gary conversed seriously with Ray, who was at the controls.

"I fear this presages a fearful conflict," he said. "The radio of the Callistonians has probably advised their home body of the happenings of the past few hours. Should we not have destroyed their lunar headquarters?"

"Probably. But I hated to do it in cold blood. Besides, we can always return in a few hours and I had rather have authority from the government to proceed before engaging in such wholesale slaughter. When we have presented our evidence and have told our story, there must be a conference of the nations. Immediate steps must be taken to prepare adequate defense. Possibly an expedition should be sent to Callisto to fight the war there, as we suggested to Lola."

"It would save our earth much damage and suffering if we are able to prepare in time. But, with the procrastination and dallying usually indulged in when international questions are under dispute, I have little hopes of speedy results being obtained. Do you think our story will be taken seriously?"

"They must believe us. We have supplemented the evidence of the radio messages with an elaborate series of photographs. These should prove conclusive."

Gary frowned dubiously. "But the war itself," he said, "will be an extremely formidable undertaking. How do you think it would be handled most advantageously?"

"My proposal will be to construct a fleet of ships similar to the 'Meteor,' but of considerably larger size and equipped with more powerful weapons of offense. Our fusing ray was of insufficient potency, but it will be a simple matter to construct similar apparatus of many times the strength of ours. I will recommend that no less than a hundred of these vessels be built, some in our own country and some in the workshops of France, Germany, England and the other nations. By dividing the job in this manner it should be possible to have all available in six months or so, provided work can be started at once. With such a fleet properly manned, a very short period of training will suffice and, if the enemy have not anticipated us, the armada can set out for Callisto, stopping en route to destroy the lunar base of operations."

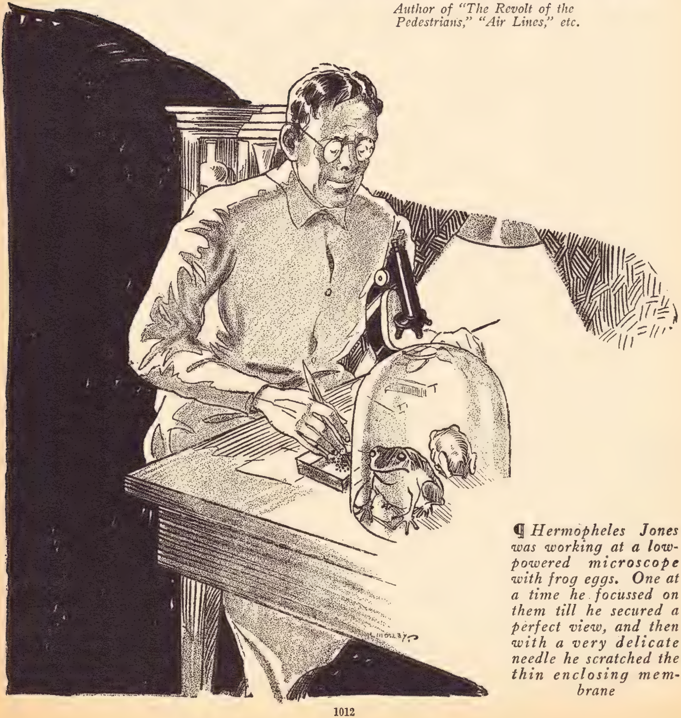
"Sounds reasonable, Ray. I have an idea also that we may be able to decode the Callistonian radio messages with the help of Lola. With that brain of hers she should be able to pick up our language very quickly, and even if she is not familiar with their dot-and-dash code she will be able to teach her own language to some of

(*Continued on page* 1045)

A Twentieth Century HOMUNCULUS

By David H. Keller, M.D.

Author of "The Revolt of the Pedestrians," "Air Lines," etc.



¶ *Hermopheles Jones was working at a low-powered microscope with frog eggs. One at a time he focussed on them till he secured a perfect view, and then with a very delicate needle he scratched the thin enclosing membrane*

As a result of being rather intoxicated, John Reiswick left the elevator at the twentieth instead of the thirtieth floor of the new Astor House. Immaculately dressed, drunk enough to be rather dignified, and at the same time, sober enough to keep quiet, he had started to attend a banquet, given in honor of the football team of Columbia University of the year 1937. This affair was being held just ten floors above the one in which the American Philosophical Society was holding its annual meeting.

Reiswick looked as much like a member of the American Philosophical Society as like an old football star of Columbia. Consequently, when he left the elevator at the twentieth floor instead of the one ten stories above, obsequious waiters ushered him into the banquet hall, where he spent an hour of dreary eating in the company of two hundred real members of the Society. No one was certain of his identity, and so it was thought best not to take a chance of offending a distinguished guest, who was for the time being, apparently lost in deep thought. For this reason he had been placed in an advantageous position near the speaker's table. As much as his condition would permit, he gave serious attention to the programme, though the first few papers read made him wonder when the hip-hip-hurrah and the usual jollification would begin.

He really did not understand much of what was said and it was not till the last speaker was introduced that he heard anything of interest. This member of the Society was a sociologist of note and the theme of his address was the gradual lowering of the birthrate in America. For some unknown reason the women of America were becoming sterile. Birth control, companionate marriage, feminine independence, the high cost of living, the diminution in the size of the average home, could be considered as playing some part in this lowered birthrate. It was believed, however, that none of these factors really reached the root of the trouble, and that unless the real reason was found for the rapid drop in the number of births and steps taken to correct it, the American people would soon fall from its commanding place as a leader of nations.

"There are not enough babies being born," the speaker said emphatically. "In fact," and here he tried to alleviate the seriousness of the situation by speaking in a lighter vein, "in fact, unless something is done soon, it may easily be that twenty years from now there will no longer be a football team at Columbia University."

John Reiswick had a one-track mind. That was what made him such a football star in the old days and the same trait had enabled him to become many times a millionaire in the ten years following his graduation. During these years, his great love had been the football team of Columbia and its supremacy over all other teams. He spent money as an alumnus as freely as he had spent his muscles prior to graduation. He worked at making money but he spent all his spare time increasing the glory of Columbia. Naturally, the part of the speech that seemed to impress him the most was that statement: "Twenty years from now there will no longer be a football team at Columbia University."

He remained quiet till the end of the programme, and then made a beeline for the sociologist. He simply asked for one thing—the man's card. In his alcoholic state, he could not do any logical thinking, but he did know that this man had made a statement that required investigation, and he also knew that the next morning he would have a clear head. With the card in his pocket, he left the banquet hall, as dignified and as drunk as when he entered it, but in that head of his was the one idea.

Where is the ever-increasing mechanical treatment of family life going to lead us? The voluntary decrease in the birthrate, the standardization of life, the trend of modern foods—all must inevitably have a definite effect on the human being. It seems to us that this story must be of especial interest to women, though it will give men plenty to think about, too. Dr. Keller knows whereof he speaks and he builds his possibilities on sound scientific observation. Whether you agree or not, you must admit "A Twentieth Century Homonculus" is an excellent story.

Illustrated by MOREY

The morning came and with it sobriety. A shower bath and hot coffee put him in excellent shape for a day's work. His valet, who had, as usual, gone through his pockets, respectfully called his attention to a visiting card the rich man had brought home with him. At once Reiswick recalled the entire affair, and with the directness that had made him a rich man, he 'phoned to the office that he would not be there till late, and started out on his search for the speaker who had made such a disturbing statement.

Dr. Stanfield was annoyed at being roused from a sound sleep by a total stranger. He refused to see the man. This attitude did not last long. The stranger was insistent—the stranger was worse than that—he had stated bluntly that he was simply going to stay there till he saw the Doctor and that no one was going to make him leave. Realizing, under the circumstances, that it would be better to get rid of him by seeing him, Dr. Stanfield sighed and wearily dressed to go down stairs. Once down there, and finding who the visitor was, he thawed considerably. He even told Reiswick that he was glad to see him and asked him to breakfast. Reiswick accepted the invitation and lost no time in giving the reason for the early visit.

"What I want to know is simply this. You said last night that in twenty years there would be no more football at Columbia. Why?"

The Professor frowned.

"That was rather a wild statement of mine. What I wanted to do was to impress upon the Philosophical Society the danger of the rapidly falling birthrate. There are thousands of women in the United States today who are sterile, and, apparently, no scientist has so far been able to discover the reason. Most of these women want children and cannot have them. So serious is the situation that the lawyers of the country have at least been talking about the wisdom of passing a national divorce act which would allow an easy separation in such cases of sterility. You see this lowered birthrate threatens the very fabric of our national life. Our social security is based on the continuance of the family. Our wealth has to descend from father to son. The men of wealth feel that they have failed in life if they have no son to inherit their estate. If the lowering of the birthrate continues for another twenty-five years as it has for the last five, the situation will become serious. In fact it is almost serious now. If this is true, you can figure for yourself where the University will get its football stars in another twenty years. As I understand it, many of the stars are from the families of the rich. It seems that these are the families that are being largely affected. The very poor seem to be having some children, but even they are not as prolific as they were, and, of course, their children do not, as a rule, go to our colleges and universities.

Reiswick shook his head rather mournfully as he murmured:

"No more football. Something must be done."

"No doubt something will be done. Some one will find the reason and with the discovery will come the cure. Are you a married man? No? Then you are in a serious condition. If you do marry, you are simply playing with fate. You will probably die without ever having a child you can call your own."

"You don't really mean that?"

"I really do. You have been so occupied with football and business that you do not realize the concern with which the New York upper set is looking at this matter. I have personally interviewed over one hundred physicians who take care of the best people in this city, and they tell me that a large part of their worry is the sterility of their patients. So far they have been unable to do anything. Their patients seem to be in perfect health but there are no children."

"But there must be some way of solving this difficulty. We have to have men to keep up football at Columbia. And, now that I think of it, I ought to have a child. I am a rich man, and I should have a family."

"I agree with you, but if you marry, the odds are against you. That was what I was talking about last night, and as far as I can see the matter is growing worse all the time."

"I shall have to think this over," said Reiswick, finally, as he drank the last of his coffee. "Send me a bill for this consultation and I will see that you get a check at once. I am going to see you again. This is very interesting to me, and I am going to see what can be done about it. It may sound conceited, but up to this time I have never failed to get a thing I started for. And I feel that I am going to get this."

As soon as Reiswick reached his private office he sent for his secretary.

"Bill, sit down. I want to talk to you. How many young men in the office?"

"Exactly one hundred and fifty-seven."

"How many are married?"

"As far as I know about fifty per cent."

"How many of them have had children this last year?"

"Just one."

"You don't mean just one?"

"That is all. And that is rather a peculiar case. Young Smithson in the shipping department. You remember that you sent him to Burmah about two years ago? He married out there and, while he swears the little lady is a pure Aryan, she seems a little dark, though she certainly is pretty. I have seen her once or twice when she called at the office for her husband. They live over in Brooklyn and they have a baby three months old. You were busy coaching the team when the child was born and so, when the boys made up a present for them, I just put in fifty dollars for you and I never did think of telling you. It surely was of no importance."

"But it was. Send for Smithson. I want to go right out there and see that baby. No time to spend. Tell him I will be waiting for him in my auto out at the curb."

"How about the letters, Sir?"

"You sign them for me. This is something far more important than the mail. I am up against the biggest problem in my life and there is no time to be lost. Do you know that I am thirty-three years old? I never realized the danger till now. You look after things while I am gone. Tell Smithson to hustle. I want to see that baby."

A FEW minutes later Reiswick and Smithson were in the automobile, threading their way to Brooklyn. The young shipping clerk was naturally excited. He wanted to ask a dozen questions, but realized that the best thing to do was to keep quiet till he found out what his employer wanted. Finally Reiswick asked:

"Why didn't you tell me that you had a baby?"

"I did not know that you would be interested."

"Not interested? Do you realize that I am more interested in babies now than I am in anything else in the world? I do not know when I was so interested in anything. How does it feel to be a father?"

"It really is wonderful," replied the young man, smiling. "You see, there are not so many babies in our neighborhood, and it has brought us into a lot of social prominence. Lots of really fine people have called to see the baby and asked us to come and eat a meal with them and bring the baby. Several men have offered to buy the little one for as much as a hundred thousand, but of course we would not sell her for any amount. I think that she knows me already, and she is the most fun when she is taking her bath. I only have a chance to play with her at night and on Sundays. You see we are not rich enough to have a nurse and servants and so I help the wife a good deal. She does all her own cooking, knows how to make a lot of eastern dishes that are really very fine and not expensive either. Are you making this trip just to see a baby, sir?"

"Just to see the baby, Smithson, and that is all. I wanted to see a real baby and the first one I was able to locate was yours. As you say, babies are scarce. It has been a long time since I actually saw a baby. In fact, I do not remember when I saw a baby—real close. So I wanted to see one."

"Well, if you want to see a real baby, you will have a chance when you see Susanne. Takes after her mother some, but has my eyes and a funny little twisted smile. My wife says that she saw that smile when the baby was only a few days old, but then you know all mothers are foolish over their babies that way, thinking they look like the father. At least that is what I have read in the old books."

In another hour Mr. and Mrs. Smithson, John Reiswick and Susanne were entertaining each other in the bathroom. Susanne was having her morning bath—rather late—but then Mrs. Smithson said that she always slept late. Reiswick just sat there and looked at the little girl. Finally, the rich man took a deep breath as he said:

"So, that is a baby?"

"I'll say it is," answered the proud father.

"She is my child," said the beautiful dark woman, in a very proud voice. "In my language I call her 'A Flower from God!'" She took the baby out of the water. Reiswick held out his arms.

"Please let me hold her for a minute."

And there the little one lay, looking up with wondering eyes at the big man playing with the golden football that hung from his watch chain. What passed between the baby and the old football star was hard to say, but no doubt it was a very important idea.

The rich man and the young shipping clerk rode back to the office in silence. As they left the automobile Reiswick said:

"I am going to double your salary. I want you to be able to take good care of your wife and baby. If she ever is sick, send for the best specialist and I will pay the bill. You are a fortunate man to have a child."

All that afternoon Reiswick sat thinking, in his private office. He refused to see anyone or to answer the telephone. At five he called up Dr. Stanfield and asked him to take supper with him. The Doctor refused and pled a previous engagement. He was sharply told to break it, that there was a thousand dollar fee if he would give Reiswick the evening. As a result, the two men dined in the millionaire's apartment.

"What I want is this," said Reiswick, "and I am not going to beat around the bush. I want to be a father."

"Why not get married?"

"You told me this morning that if I did the odds were against me. So why marry? I want at least an even break in any game I play."

"Well, you could try it."

"Too much gamble. I must be reasonably sure. There is no time to spare. I want a child just as soon as I can get one. I actually saw a baby this morning."

"Why not marry and adopt that child?"

"I am not rich enough. The parents would not sell it. They love it too much. It is interesting. The mother is from Burmah and does all her own cooking and housework. I actually held their little girl baby in my lap."

"Give me their address. I am investigating all interesting babies for the Rockefeller Foundation. We feel, if we can find out how some parents live and have children, that we may find the reason for other married men and women not having children."

"Go ahead. Here is his name and address. But such investigations take too long to please me. I want a baby at once and it would not be fair to a lady to marry her. I have to be sure."

"In other words you want to be a father."

"Yes."

"The important thing for you is not to have a wife but to have a child."

"That is it."

"You should have lived a few hundred years earlier. At that time ladies were not looked upon with much favor. Lots of scientists felt that the human race would be much finer in every way if there was only one gender, the masculine one. During that time there was a Doctor called Paracelsus. Some thought that he was a quack and then others were sure that he was a very wise man. If he were living today he might be able to help you, as he claimed, in one of his books, that he was able to make human beings without the help of the female sex. He called these interesting children by the interesting name of *homunculis,* and they were all men and all very brilliant mentally. I happened to think of it and brought the book with me."

"Stop your nonsense. The thing is impossible."

"It would seem so. Let me read you the exact description which he has left to us. Here are his directions to anyone who wants to follow them," and for fifteen minutes he read to Reiswick out of a very old, leather-bound book. Then he closed the book.

"He claimed that he made many of these little wise men and sold them to the nobility of Europe for Court advisors."

Reiswick scratched his head.

"I am not very well educated," he finally said. "I took the football course the four years I was at Columbia, but frankly, the thing seems impossible to me."

"It does to me, too," admitted Dr. Stanfield, "but there is this to say about it. Here is an exact description of an experiment in biology. We look upon it as an impossibility but we have to admit that *no one has ever duplicated that experiment in this scientific age* and actually found out for themselves that it will not work. However there is a man out in Chicago who is doing some interesting things with frog's eggs. He takes the eggs and irritates them with a needle or with acid and every now and then one of them matures without being fertilized. This man is a recluse but he has done a great deal of work in parthenogenesis. I met him once and did not know whether he was insane or just queer. Perhaps you might induce him to do some work for you along the lines of Paracelsus."

"Give me his name and address," said Reiswick, rather grimly. "If money and science can give me a baby, I am going to be a father. You collect your fee from my private secretary. I am off to Chicago on the next train. If I go on the Pennsylvania I can fly from Cleveland to Chicago and save some time. I would like to talk more with you about this, but I am growing older every minute and have no time to spare."

In a most unceremonious manner he rushed out of the dining room and shouted orders to his valet. Before Dr. Stanfield realized what had happened, he heard the front door of the apartment slam.

JOHN REISWICK was on his way to Chicago.

Hermopheles Jones was working at a low powered microscope with frog eggs. One at a time he focussed on them till he secured a perfect view and then with a very delicate needle he scratched the thin enclosing membrane. Now and then he broke an egg, others he scratched poorly. When he made a perfect mark, he smiled. He had decided to scratch fifteen hundred more eggs. If ten of them survived the injury and started to grow he would be satisfied; if two kept on growing he would be delighted.

Meantime his wife was working as a seamstress to support the family, including her husband and two aged parents. So far, there had been no children, and the learned biologist had been too much interested in frogs' eggs to appreciate this fact. He certainly did not worry over it.

He may have heard Reiswick speak to him, but he gave no sign of it. It is possible that he felt a strong hand on his shoulders, but he kept on working with the eggs. Suddenly, he felt himself lifted off the stool and forcibly dumped down in a chair. Standing in front of him a great man demanded if he was Hermopheles Jones."

The biologist glared at his visitor, as he replied:

"Yes, and you spoiled a perfectly good egg."

"Don't worry about that. I will buy you another one. I came all the way from New York to see you and I have no time to waste. I want to be a father. I want a baby."

"You let me go back to work. Are you insane? I don't have any babies. Go to an orphan asylum."

"Dr. Stanfield of New York told me that you knew more about eggs than any living man. Do you know about Paracelsus? Could you repeat his experiment and find out whether he was telling the truth or not?"

The scientist beamed his joy. Rushing over to the door he locked it and then returned to his visitor.

"Some think I am insane," he confided, "and if they knew what I really think they would be sure of it. Paracelsus! Do I know him? Why, man, that old scientist is my God. I think that he was one of the most wonderful biologists that ever lived. I have read and reread his work and the only thing that has kept me from repeating all of his experiments has been a serious lack of funds. Think how marvelous it would be! Life without the female sex!! I have an idea that it would make *a perfect world!* Others can say that Paracelsus was a charlatan if they want to, but I really believe that he was able to do all that he claimed to be able to do. Now I have done a lot of work with eggs; I probably have done more with frogs' eggs than any living man, but I am too poor to work along the lines of that great Swiss."

"I have the money," said Reiswick, simply. "How much do you want?"

So then and there they talked the matter over.

Money can accomplish wonders. It is not surprising, therefore, to find that Hermopheles Jones was torn from his Chicago retreat. His family were amply provided for in every way for a three-year period. For the first time in his scientific life, the biologist was able to buy everything that he wanted to make a really accurate study of the primary source of life—from the masculine viewpoint.

A small island in an isolated part of the Pacific Ocean was bought at a fabulous price from the French Government. On this island a small, but wonderfully complete, town was built overnight out of houses brought from San Francisco in sections. A colony of thirty persons, comprising every possible form of brains and labor required for such an undertaking, was transported from the States. In all of these preparations, John Reiswick took a leading part, as he was eminently fitted to organize and direct any undertaking. In fact, he suggested several accessories to the equipment which had not entered the minds of any of the other members of the research group. One of these was a herd of goats with an experienced goat herder. Another was a small hospital, fully equipped for all emergencies and especially able to care for babies. Two graduate nurses were taken along to care for this hospital; also a young Doctor to care for the health of the Colony and help entertain the nurses. Reiswick wisely said that since the final purpose of the expedition was to make him a father, it would be well to be fully prepared to care for the babies when they arrived. That was the real purpose of the hospital and of the herd of goats.

The rich man had so arranged his business that he could be absolutely free from any responsibility for at least three years. He wanted to have a real vacation. At the same time he was so accustomed to the conveniences of a modern office, that at the last moment he had added to the equipment an extra room fully furnished to serve as his office, even to the stenographer, who was to be his private secretary. As this idea had entered his mind but a few days before the ship sailed from San Francisco, he was unable to secure the services of a stenographer from his New York office and therefore was forced to employ one from the city of the Golden Gate. He realized that there would be little business to be transacted, but because he wanted to keep his mind occupied, he determined to follow out an ambition of years and write three books, one a history of football, the other an account of the four years he had played at Columbia and the third a prophecy of what would happen to football in the future, if the continued disuse of muscles and the increased use of machinery made men smaller and weaker. He had devoted more time to sports in college than he had to literary composition, and therefore in his selection of a private secretary, he was careful to employ a young lady who was fully able in every way to assist him in the details of perfect literary work.

TO say that Ruth Stilson was a modern girl in every way would have done her an injustice. She had not gone through the world with her eyes shut but she had kept her fingers carefully crossed, and devoted herself to the perfecting of herself in her life's ambition, rather than to the following of the bright pathways of the ultra-modern youth. All her life she had wanted to write a book; as a child, she was always scribbling on paper with a pencil; her study of stenography was a part of the preparation she made. In college, she majored in English, and her old Professor openly stated that she had a better idea of the correct use of the comma than any student whom he had ever passed through his classes. She was not beautiful but she was brilliant from an intellectual standpoint; she was not modern but she never used the split infinitive; she did not live the life of a flapper, but she adored watching her. In fact she had composed a very serious essay entitled, "The Dynamite of Adolescence."

It was this very serious-minded young lady who was selected, from over fifty applicants for the position, to be John Reiswick's private secretary. After talking to her for a few minutes, the ambitious man felt that she was very safe socially, and at the same time would be remarkably helpful in the preparation of his manuscripts. She silently thrilled over the idea of three years on a tropical island, as she felt that the quiet and leisure would enable her to rewrite, and this time perfectly, her great American novel.

With his usual flair for organization, Reiswick had overlooked no detail of the community life. The arrangements for feeding the colonists were complete, as two Chinese cooks served daily an abundance of every form of oriental fruit and vegetables with an occasional young kid, fresh fish or tropical fowl. Everyone had a definite work to do, and Reiswick had taken no one that could not do his work perfectly and at the same time harmonize with the other colonists. There was not only work but amusement for all. Early in the history of the the island a series of sports were arranged and a request issued that each person spend at least two hours a day in exercise. A six-hole golf course was built, and Reiswick himself taught swimming to all who were not proficient in this sport. He felt that the only way for a healthy mental life to continue on the island was to keep everyone in the best possible physical condition. This was easy with all except Hermopheles Jones and the three wild-eyed biologists, whom he had induced to be his co-workers in this great life-adventure. These four scientists would never have left the workshop had it not been for the insistent demands of the great American who was spending several million in this biologic effort to become a father in the shortest possible time.

Reiswick had several serious conferences with Jones. The biologist, as is the case with many ultra-scientists, did not seem to comprehend the real urge behind the spending of these millions of dollars. He showed this in one of his remarks to Reiswick.

"I consider the hospital inadequate," he exploded. "In fact, the whole economic machinery is too small. We should have conducted this experiment in a great city where there would be adequate facilities for the care of hundreds and thousands of babies at the same time. If this experiment works at all, we are just as likely to have fifty thousand babies growing to maturity as we are to have one. What should we do with them? What good would thirty goats do? By the time we imported a ship-load of milk, those perfect children of my skill would die of hunger. Besides our laboratories are not large enough, our glassware is inadequate. You should have listened to me."

"You do not understand my purpose," replied Reiswick, calmly. "I want to be a father, but I have no special yearning to be the father of fifty thousand babies. In fact, I feel that *if I had just one* I would be satisfied, especially if it was a boy baby. That was one reason why I was interested in the statement of Paracelsus. All of the babies he made were males. Of course, if we made fifteen at the same time and sent them all to Columbia at once and formed a Columbia-Reiswick football team, it would be a rather fine performance, but I am not as enthusiastic about football as I was, so I am not going to be disappointed if the baby you make for me *is a girl,* so long as she grows to be as beautiful a woman as my mother was. Of course, back of everything, is a desire to do something towards preventing the human race from going out of existence, but primarily I regard this as purely formative experimental work of a very personal nature. If you can make one baby, there is no reason why you cannot teach the scientists of the world how to make babies in every large city, and in that way the race will be preserved. Of course we may only be able to make males, but perhaps they can get wives—in Burmah. So you keep this in mind. I want to be a father, but I do not want you to overdo it. I'll stop the whole work and discharge you if you start turning out these babies like a—like a—well, like a swarm of bees."

The scientist threw up his hands in hopeless dismay as he said:

"But what am I to do? Suppose we are successful and we have a thousand babies in the first experiment? Do you want me to kill them—these beautiful results of my scientific skill?"

"My mother used to warn me never to cross a bridge before I came to it. So far you have not made even one baby. In fact you tell me that you have not even started to make a baby. You wait till you actually have a thousand babies and then you come to me and we will decide what to do. We may pick out ten or twelve of the finest ones and concentrate on them."

"Then you are not going to let me grow fifty thousand if I can?"

"Certainly not! Think how it would make me feel to be the father of fifty thousand boys and some of them girls! There are not enough names for that many. We would have to give them numbers and tattoo them to tell them apart. Miss Stillson would have to devote all her time to making a card index for them. Why, I should have to endow several universities just to educate my children, and then—think of this. I am not the richest man in the States. There are others with far more wealth than I have, and when one of us starts a new fad, they all enter into the most active competition. Suppose it became known that I was the father of fifty thousand children? At once three or four other men would never be satisfied till they had a hundred thousand apiece and the large banking houses like Morgan's might try to have five or ten million. It just would never do. There might be an actual overproduction. That is why I selected a desert island for this work and pledged every one to secrecy. That is why I look over all outgoing mail. So do not be too rash in your enthusiasm. I shall be satisfied if I have just one baby to call me 'Papa' and I am going to love it just as much if it is a girl as though it were a boy."

When Reiswick returned to the office he repeated as much of this conversation as he could remember to his secretary. One of his reasons for having an office and a private secretary was to enable him to keep an accurate diary of the work of the colony. For this reason he made Jones dictate a daily statement of his progress. Of course the work was so ultra-scientific and the language used so pedantic, that no one could have any idea of what it meant, except an equally learned biologist, but Reiswick wanted a record of the work to stand as a textbook for other men in their efforts to keep the human race from final dissolution.

MORE and more Miss Stillson became interested in the efforts that the big man was making to become a father. She became so enthusiastic that she spent long hours going over every detail of his ambition. She even cried a little as he told her of the years which had passed without his even seeing a baby, and then of the great thrill and deep longing that had come over him when he held the little child of the Burmese woman in his arms.

"I knew then," he told her in the direct language that he was always in the habit of using, "that wealth makes no difference and fame is at best a temporary gesture. Ambition can be selfish. I found when I touched that little baby, that after all, love is one of the great emotions in life. Since my mother died I have had no one to love me or to love—and it seemed to me that if I had a child, it would make life worth while. That is why I am spending three millions of my money and these three years of my life here. Many of the colonists think that Jones is trying to make gold or a medicine to prolong life, but what he is really doing is more valuable than gold and makes life really worth the living. I should rather be a poor man, like my shipping clerk, and have the love of a child, than be worth all of my millions."

"As I remember it," remarked the secretary, "your shipping clerk was married and this child of his was a natural child, the result of the great love that can exist between a man and a woman."

"Yes, she was a Burmese woman, but very beautiful. They were poor, but devoted to each other. It is peculiar how attached people can be when they are in love with each other even when they are poor. They had no servants and she did all the cooking in the oriental style. He said that he would rather listen to his wife talk and his baby coo than live in a fine hotel without them."

"Then they were in love?"

"That is what they said. I offered to buy the baby but—nothing doing! Right then and there I made up my mind to have a baby of my own. I wanted to be a father."

"Do you really believe that if Hermopheles Jones is successful and makes a baby for you, after the method described by Paracelsus, you will be satisfied?"

"I believe so. I guess so. Of course it would be nicer to have a baby—well, like my shipping clerk did—but the best authorities say it is a great gamble nowadays. To use their own language, 'An increasing number of women are showing idiopathic sterility.' If I married, there would be no surety of being a father and I could not be cruel enough to divorce my wife just because she happened to be unfortunate."

"But you would appreciate a wife. The more I think of it, the more impossible your position seems. Take the affair from the viewpoint of the child. That baby is entitled to a mother just as much as to a father. What are you going to tell the poor little thing when it grows up? Now if you had a wife, she could mother the little baby, even if it was of this peculiar Paracelsian origin. Then when the baby grew up it would have *parents* instead of just a father. It would be like other children and that would make it happier. Then there is the attitude of society. You disappear from your friends for three years and when you come back you have a little baby. How are you going to explain it? Are you going to tell your friends that it is a Paracelsus baby? They will think that you are insane. But if you have a wife you can simply say, 'This is our baby' and your friends will say, 'What a lovely child. She resembles the father but she has her mother's eyes.' Do you see? There would be no need of any awkward explanations."

"I never thought of all that," answered Reiswick. "I am a one-track man. All I can think of now is to become a father. After I really have a baby, I suppose these other matters will come to my attention and then I will deal with them as the necessity arises."

For some months he worked very hard on his three books on football. As a result he saw a good deal more of Ruth Stillson than he did of any of the rest of the colonists; in fact he saw more of her than he had seen of any woman during his entire life—except his mother. His secretary's intelligence made him envy her; her interest in his desires to become a father pleased him and her ability to turn his dictation into beautiful English made him determine that under no circumstances would he ever permit her to work for any other man. In other words, he fell in love with her and did not realize it. That is, he did not know it till one day she was in swimming and was stung by an electric ray fish. She suffered so she became unconscious and Reiswick had to bring her ashore, where the Doctor worked for some time to resuscitate her. During those anxious moments John Reiswick understood what it would be to be deprived of her companionship for a lifetime instead of a few minutes of unconsciousness. He now realized what was the matter with him.

The following Sunday they were married by the Episcopalian clergyman who had been brought along to look after the spiritual needs of the little colony. Without doubt this marriage was one of the most noted events occurring on the island. The cook served a wonderful dinner, the ladies of the colony did their best to furnish adequate floral decorations and combined all their wardrobes to make the bride's wedding dress. Even the four biologists were forced to take a full day's vacation.

After that came three glorious months of tropical sunshine and lovely night, illumined by the moon and stars and melodied by the ceaseless throbbing of the surf on the complaining coral strand. The longer John Reiswick and his bride lived together, the fonder they became of the poetry of life, and the less interested they became in football and the great American novel. At times Reiswick even lost sight of just why they had come to the island.

Then came the regular semi-annual visit of the private steamer. The Captain brought confidential messages that made the happy bridegroom go around with a long face. There was danger of war being declared between the United States and Japan. Of all the rich men of America, Reiswick was the only one that wielded a powerful influence with the little brown men of the Orient. The President urged him to go to Japan and stay there till a better understanding could be arrived at between the two great powers. It was a request that could not be ignored and Reiswick at once saw that the only thing he could decently do was to comply with the request. He dreaded to tell her, but he felt that it would not be wise for her to go with him. War might be declared at any time and there was the danger of submarines. To his surprise she was willing to remain on the island; it seemed that she was afraid of being seasick, and besides, she felt that it was her duty to stay on the island and look after his interests while he was away. She considered that there was too great an investment there for both of them to go and leave it. She ended her argument by saying:

"Hermopheles Jones seems to feel that he is actually making some progress. He is always saying, 'Time will tell,' and is remarkably optimistic. If he really does produce a Paracelsian baby in the next year, all the more reason for one of us being here to direct its care. So you go, and come back as soon as you can, and take good care of yourself, because I love you—and I am just going to die if anything happens to you."

That was the end of the argument. Reiswick gave a multitude of orders, a large amount of supplies was unloaded, and then the steamer slowly disappeared into the western seas. Ruth Stillson Reiswick cried. She had not known that love could hurt a woman so much.

SIX months and some weeks passed. Reiswick was a go-getter. He had gone to Japan to stop the war-talk and promote a kindlier feeling between the two nations, and he had finally succeeded. The Japanese Emperor had decorated him with the Order of the Rising Sun. The medal was a beautiful gold star, encrusted with diamonds, and when Reiswick first looked at it, he suddenly realized what a wonderful plaything it would make for a baby. The word, baby, recalled the island and the biological Jones and the lonely bride, Ruth, who was so patiently waiting for his return, and, in the meantime, looking so efficiently after his interests. He radioed the President of the United States that all was right in Japan and that he was leaving to look after his personal interests. Then he boarded his steamer and told the Captain to put all the steam on and beat it for the island.

He arrived at the lonely island just at twilight. The

Captain urged him to stay aboard ship till the next morning, but he refused and ordered a boat to take him ashore. Arriving there, he walked rapidly to his home. There was no one there; there was no one in the office. Then he saw lights in the hospital building, and went there. A group of colonists were seated on the steps. The Preacher took Reiswick to one side and told him in grave tones that Mrs. Reiswick was sick, but that everything was being done for her that was possible. The excited, worried man rushed into the hospital, but was told that he could not see her; not now, she was too sick. He asked a hundred questions to which no one seemed to be able or willing to give him any satisfactory or definite reply. At last he walked back to his office and sat down in his favorite chair; the chair opposite him was the one his wife used to sit in when they were working on his books. He wondered how life would be if she never took any more dictation? What had he done to deserve this? Why had fate made it necessary for her to die just when he had come back to her?

Then Hermopheles Jones came in. He seemed as downcast as Reiswick. At the same time, he said that the experiments were going along all right and that they were at a point where he might be able to announce success at any time. He said that at times he was discouraged; it seemed rather hard to follow Paracelsus in some of his experiments, the language was ambiguous, but at the same time they were making progress. Reiswick heard him as though a spirit were talking across the table. Finally Jones said:

"Have a drink? Will you take one if I fix it?"

"No. I am through with that sort of thing. Ruth does not like it."

Then he remembered that he should have said, "Mrs. Reiswick."

They sat there through the night. Finally the morning came, as it does come in the tropics, with a great burst of light, like a flower of the dawn, suddenly unfolding from the bud. Reiswick heard the sound of laughter, confused voices, and wondered if the women were hysterical. Great God! That was it. Ruth was dead and they were coming to tell him and it was too much for them. They were laughing and crying. She had died and he was not there with her at the last moment. It was cruel of them to shut him out. A nurse came running into the room and in her arms was something in a blanket, and the white-gowned woman said:

"Oh! Mr. Reiswick and Mr. Jones. It's a girl and the finest you ever saw. What do you think of that, Mr. Jones? A baby on the island."

The rich man was torn between emotions. His wife was dead and, in spite of the pessimism of Jones the biologist had produced a baby. Through his tears, he smiled at the little man and wrung his hand.

"I congratulate you," he said. "This will make your name immortal. It was your brains and perseverance that enabled you to show the world that Paracelsus was right."

He turned to the nurse.

"Take good care of this baby. See that it is neglected in no way. Start the goat's milk according to the Doctor's orders. As soon as advisable I am going to have her baptised, and I am going to call her Ruth after my poor wife. You can all understand how I feel about this; the success of the experiment leaves me cold; if it had happened before the illness of my wife, I should have been the happiest man on earth. Now please leave me. I want to spend a few minutes with my dead wife, the only woman who has loved me since my mother died."

They gathered around him and tried to tell him something. He simply shook his head, like a stricken lion, and burst through them in his wild rush to the hospital. The nurse slowly followed him, carrying the baby. Up the steps and into the room that had the odor of chloroform. The Doctor blocked the door and the Doctor landed outside the hospital on the ground. Then, into the room, Reiswick went and fell on his knees by the bed.

Eternity passed, and then he felt a hand straying through his hair.

"No one should do that but Ruth!" he said and turned to reprimand the nurse, but he found that the hand was Ruth's hand as was the wan smile. She was not dead at all. Not at all!! She had just been sick but she was better now. Wonderful. Fine! Exquisite!! Ruth was alive and Jones had a baby for them, a little girl baby, AND HE HAD ALWAYS WANTED A GIRL BABY.

"I am glad you came back," whispered the wife.

"I came just in time."

"It was the baby pulling you back."

"It was God bringing me home to you."

"Are you glad, Johnnie, about the baby?"

"I certainly am. Jones is to be congratulated. It is all working out nicely. You are going to get well and the baby will have a mother."

"It's our baby."

"You bet. That is what we are going to tell her when she grows up. No use in her knowing about this Paracelsus stuff. How about it though? Shall I tell Jones to go ahead and make fifteen or twenty more?"

"Right now I think that one is enough," whispered Ruth Stillson Reiswick. Her request was a command to the rich man.

He looked up at the nurse who was holding the baby.

"You let me have that baby and you go and tell Dr. Jones I want to see him."

In no time the biologist entered the room. Reiswick faced him, and in the millionaire's arms the baby slept.

"Dr. Jones. You have done fine, and from what I have seen of this little baby, whom I am going to legally adopt as my daughter, she comes very nearly being a real fine child in every way. I congratulate you and I will see that you are kept in comfort for the rest of your life. If you want to, you can go ahead with your studies. It may be that you can arrange with the French Government to supply them with a hundred thousand babies, but, as far as I am concerned I am ready to stop. My wife and I have talked this matter over and she thinks that even fifteen babies would be too many. So I want you to dismantle the workshop. Everything in it belongs to you. We are going to close this colony and as soon as Mrs. Reiswick has recovered from this strange illness, we will go back to New York."

"You want me to stop?"

"Yes, as far as I am concerned."

"Right when I felt I was on the point of success?"

"Yes. I consider that you and I have shown that Paracelsus was right. If the work is to be conducted on a large scale, it will be in some other place than this island."

The biologist left the room. Reiswick sat down beside the bed and held his wife's hand. On the other side of the bed the nurse sat holding the baby. Mrs. Reiswick looked at her husband.

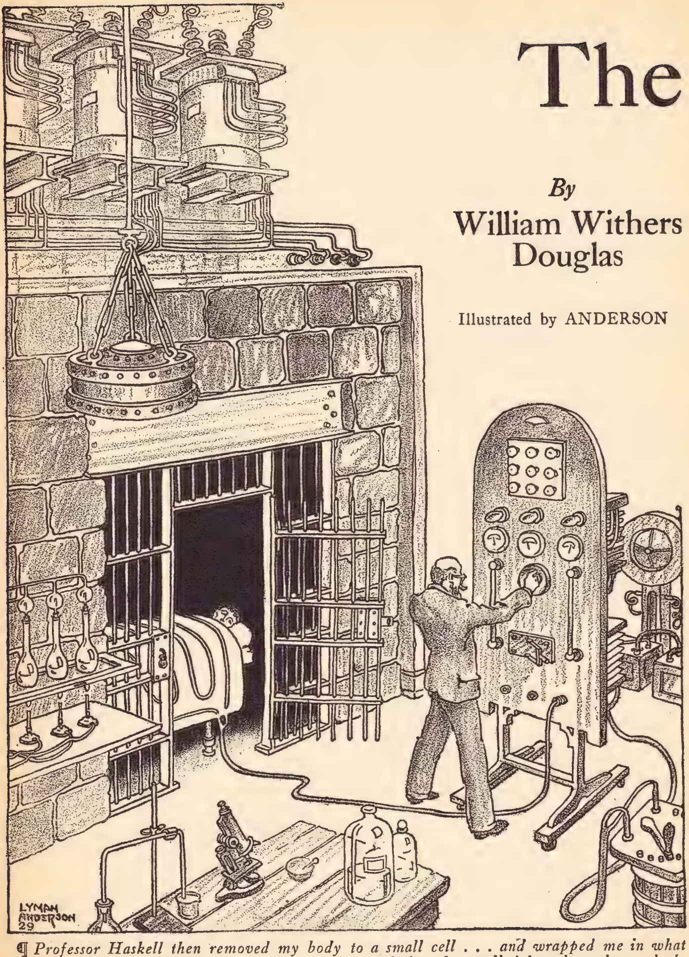
(*Continued on page* 1045)

The

By

William Withers Douglas

Illustrated by ANDERSON



¶ *Professor Haskell then removed my body to a small cell . . . and wrapped me in what he termed electrical blankets, and by carefully regulating the applied heat brought my body back to normal temperature.*

Ice Man

THIS is a unique story indeed. We have had numerous tales giving the possible reactions of a twentieth-century person who suddenly finds himself transplanted by one means or another into the far-distant future. We, who are living in this century, being thoroughly acclimatized, see nothing humorous, or even ludicrous, in many of our situations. Our new author has an excellent sense of values, which, coupled with a good sense of humor, makes possible this tale depicting the feelings of a Roman of ancient times when he finds himself suddenly in the heart of New York in the twentieth century. A good touch of Edgar Allan Poe in the story adds greatly to its literary value.

Author's Note: Under no consideration will the author reveal the identity of the person *Marcus Publius* mentioned in this story.

Our hero is now isolated in comfortable surroundings and is perfectly satisfied with his moderate luxuries, while enjoying complete freedom and peace of mind in his seclusion. Many readers will not sanction the author's action in effecting Marcus' escape from the B—— Insane Asylum. It is hoped that the reader will appreciate the author's position after reading the following manuscript. This manuscript or report was, of course, written in Latin and is given unaltered, other than the author's translation, as received from Marcus' hand. May the reader judge for himself as to the sanity of our hero.

W. W. D.

This following inscription in English was first to meet the author's eyes when the herein mentioned package was opened:

Kind Sir:

Because of my belief that you are the one man who can and will help me, I have selected you from the many visitors that come to this Asylum. I have long awaited your coming, and I now hope that my cautious selection will not be unavailing.

Behind the bars of this cell I have been imprisoned the past year. I am without funds or friends. I am a stranger within a strange land. Pray heed my call, for the thing I ask of you is so small in itself. I seek no alms. Neither do I ask your help in effecting my escape, for I would have you do no wrong.

All that I ask is that you take the enclosed letter or report and dispatch it to the parties designated. First, read it yourself; see the vast importance of my communicating with my countrymen; then place it in the proper channels that it may reach those mentioned. It is a little favor I ask; pray do not fail me. I beseech you to make all haste, lest I truly become demented like my fellow prisoners in this madhouse.

Marcus Publius.

The Report

GREETINGS O Cæsar; Greetings Honorable Senate; Greetings to all Roman Countrymen. I am alive! I, Marcus Publius, have survived! The Great Experiment is a success! Witness my hand as proof, lest someone doubt that I am alive.

I bring great honor to Rome. I have discovered a new and strange land. It is called the United States.

My head is filled with the many wonders I have beheld. My heart is overflowing with the desire to enlighten immediately all Rome with this report. But, I must begin at the beginning, guiding you through my experiences in chronological order, lest my countrymen doubt the truth of this letter, for I, myself, have sometimes doubted if I am really alive and not with the Gods.

I will date the report, *Nov. a. 696, the present date, according to my calculation, although these United Statesians term it November, 1928 A.D.

It will be remembered that on ‡Parilia a. 695 all Rome was agog over the embarking of the Cask. I had offered myself as a martyr to science, and after a night of feasting and many toasts, I submitted to the Committee's administering of a sleep-endowing drug. I knew of naught until I was revived one year later, Aprilis a. 696, by a citizen of this United States, although he contended that many years had passed. My rescuer called himself Professor Emil Haskell and gave me a detailed account of the condition in which I was found.

The Professor was a very learned man, well versed in the science and arts of this land. While on a private expedition of deep-sea research, in what he called tropical waters, he discovered the Cask floating near his private yacht. Puzzled by the appearance of this "cake of ice" in a warm sea, he had the Cask lifted aboard by means of the yacht's boat davits.

In the hot sun on the dry deck of the yacht, the frosty coating on the Cask soon disappeared and brought forth in clarity the Latin inscription on the outer casing. Professor was overjoyed with his discovery, when he read:

"Whosoever findeth this Cask will leave it unopened and immediately communicate with the Society of Roman

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* The author translates: ‡ Parilia a. 695 as April 21, 59 B.C. Nov. a. 696 as November, 58 B.C.

Medical Scientists, provided the discovery is made one year later than the date, Parilia a. 696. This Cask contains a living man whose life has been preserved as an experiment in science and any premature tampering with or opening of this vessel will result in the occupant's death. Persons finding this Cask will keep it covered from the sun's rays, as the occupant is "frozen" in liquid oil at an extremely low temperature. Take heed, for this Cask is under the seal of Julius Cæsar."

Accepting the inscription at its face value, Professor Haskell immediately returned to his dwelling on Riverside Drive in the city of New York of this United States. During the trip homeward, he planned in detail the task of my revival, and it was due to this careful advanced thought and to Professor Haskell's wonderfully trained mind, that I am alive today. Had someone of lesser mentality made the discovery, I fear that I should not have survived to write this report.

Jealously guarding his secret from all, the Professor had the Cask placed in his private laboratory, and after gathering the necessary equipment, he proceeded to bring me back to life. A week later, after I had fully recovered, he showed me the remains of the Cask and explained each step he made in effecting my revival.

He spoke first of removing the outer covering without much difficulty, but was dismayed upon hearing the hissing noise as he punctured the second covering until he discovered that it was only the releasing of the vacuum insulation. He then noticed that the coating of frost on the inner copper tank was becoming heavier, and he hurriedly effected an opening large enough to admit light. Upon looking down, he was startled to see me in full view lying within, since he expected to find some other inner container. As will be remembered, the preserving oil in which I was immersed was of a clear straw color and came from our deep well at the very low temperature; or of 126 degrees below zero, Fahrenheit, according to the Professor's scale. These United Statesians measured heat and cold in degrees and their freezing point was 32 degrees above zero. Thus, the Professor estimated that our oil was really 158 degrees below freezing. He defined the oil as being a mixture of oil and about 80 per cent of what he termed carbon dioxide gas, with a small portion of helium.

Professor Haskell claimed to be very well acquainted with our low temperature oil of Rome, and he said there was another oil-well which produced a similar mixture in this country at a place he called Jackson County, Colorado. The well in this county had been worked for commercial use, the oil being heated by pipes of live steam, until the substance was of an atmospheric temperature. I give this information to show that Professor Haskell was familiar with our fluid and knew the conditions under which he was working.

Unaffected by the shock of seeing my body in plain view, the Professor immediately made a larger hole in the Cask and drained off the oil. Insulating his hands with heavy towels, Professor Haskell then removed my body to a small cell where he had formerly kept a large gorilla for experimental purposes. He then wrapped me in what he termed electrical blankets and by carefully regulating the applied heat he brought my body back to normal temperature. At the right moment, he injected into my heart a drug known as adrenalin, which started pulsation and restored animation. Thus did I again become alive.

It is needless to state that, had not this United States drug adrenalin been recently discovered and available, and had not Professor Haskell been acquainted with its use, I should have perished in vain as soon as my body had attained normal temperature. The Professor evidently felt very sure of himself, as he gave no thought of having violated the order of the Society of Roman Medical Scientists and seemed to care not that he had broken the seal of Julius Cæsar when he opened the Cask.

The reason for Professor Haskell's placing me in the small cell was soon apparent. He wanted to keep me a prisoner until he had finished writing a book. Daily he would visit me, and after supplying food and water, he would question me for hours at a time. I could see no wrong in telling him of the wonders of our Rome, of our manner of living, and of all the facts concerning our great statesmen. In exchange, he taught me his native language, called English. He was congenial in every respect, but insisted that I remain confined in the cell. After a month of this, I noticed him tittering and chuckling to himself at times, and I reasoned that he must be going mad. He practically confirmed this view one day when he boastfully declared that sweet revenge was soon to be his. He told me that he had nearly finished his book and that it would revolutionize all history and make his fellow scientists look ridiculous. I realized that I had been liberated from the Cask by a maniac, only to be made a captive again.

DAILY I watched for a chance to escape from my cell, but Professor Haskell was as crafty as he was learned, and always was careful to remain at a safe distance, lest I reach him through the bars.

The more I talked and listened to him, the more I realized that he was on the verge of total insanity. His wonderful brain had reached the snapping point, undoubtedly the fruits of mental over-development and his neglect of physical exercise. In desperation I racked my brain for a plan whereby I could obtain freedom before it was too late.

In order that my countrymen may know the condition of my captor's mind and in justification of my later action to obtain freedom, I shall cite a few examples of the idiotic statements Professor Haskell often made and would have me believe.

He would have it that the land and sea were round like a ball. I did my best to nullify this mad hallucination, repeating to him time and again that we Romans have long since known the world to be flat. I even told him of those who had been to the top of mountains and had proved this flat-theory by viewing the straight line of the horizon. But all of this was of no avail as Professor Haskell was very set in his views, like all men of science who have their own pet theories.

He even went so far as to say that the land and sea moved. The Professor thought that the sun was more or less stationary and that it was the Earth that moved—everything turning over during the night. This, he claimed, caused the sun to appear to rise and set, while it was the land that actually moved. I assured him that this was not the case, as I had frequently been up all night on affairs with ladies, and although the land did seem to be a bit unsteady at times, it was nothing but the result of drinking too much wine. I further assured him that I had often watched shadows of our buildings slowly crawl across the promenade of the Forum, thus proving that the sun moved.

Professor Haskell was at his worst when he would have me believe that there was no Great Edge to the Sea. He contended that the water of the Sea bent around a curve. This seemed to be the most idiotic of all his statements, save one, for it is evident to the most uneducated person that water is always flat and level. How could it be otherwise?

According to the Professor, his United States was around this bend from Rome. He claimed to know all about our land and acted very superior when discussing maps and countries. Nevertheless, I noticed that he continually questioned me regarding our cities, the construction of our buildings and homes, and upon all matters concerning our Republic. This was very strange action, indeed, for one who was supposed to know as much as Professor Haskell pretended.

The most colossal falsity the Professor would have me swallow, was that I am 2013 years old. He estimated that our Parilia a. 695 was really what he termed April 21, 59 (Before his God was discovered). He claimed that the present date was 1928 (After his God was discovered). Knowing my age was twenty-five upon entry, as I had told him that was my age, he figured that I had been confined in the Cask some 1988 years.

I believe that he was trying to beat down my spirit by casting reflections upon my intellect. However, I was not fooled nor would I allow my brain to become muddled with his wild assertions. I could see for myself that I had not aged physically, and by clever questioning, I secured his admission that we were just finishing the Winter Season. Thus, as I had embarked last Spring, it was easy to deduce that only a year had passed since I entered the Cask. I was not to be fooled simply because the United States had their own trick calendar, a calendar based on the time they discovered that there was a God.

I wondered what they would do when the discovered that there are many Gods.

Professor Haskell often admired my physical development. He would stand and watch the knotting and bunching of my rippling muscles as I daily disrobed and performed the National Roman Calisthenic Drill. While I am only physically equal to the average Roman citizen, I was far superior to Professor Haskell; he being little more in body than a well developed child. I finally conceived a plan whereby I could use his admiration for my strength as a means of escape.

Striking a boastful pose, I called to him and offered to show how easily I could crush the back of a chair in my cell. This started a little game in which he furnished articles, such as sticks and beams, to test my strength. Cunningly I played the game until finally he unthinkingly offered the article I long desired. It was a short piece of metal rod that he had used to open the Cask. He called it a crowbar.

With assumed difficulty, I bent the bar across my knee and, with the right degree of aloofness, tossed it on the floor within my cell. Soon after, Professor Haskell left the laboratory and gave me the opportunity I had long awaited.

Straightening out the crowbar, I reached through the bars of the cell and used it to twist off the little lock that held the door. To one who was familiar with the Roman lever principles, it required little effort to destroy this fastening.

Gathering my toga about the waist, I crouched by the wall near the door and awaited the Professor's return.

MY ever burning desire to forge ahead of the natural sequence of events and blurt forth in loud acclaim the many wonders of this newly discovered land, the United States, has been hard to withstand. Roman Citizens, I can picture you standing in rapt attention before the Senate as my humble report is read from the rostrum. Your eagerness to learn of the miracles I have beheld is no greater than my desire to enrich your knowledge. But I feel that I must continue in logical order, giving each event as it happened, lest some may misconstrue the happenings which I later reveal. However, I promise that your wait will not be in vain, when you hear of my stroll along New York's thoroughfares.

While crouching near the door, I thought over a plan of action. It was one whereby I could dispose of the Professor in the shortest time possible. I was eager to have him out of the way and to be able to set out on my own, in quest of new adventures, for I had become weary of the sight of the four walls in which I had been held captive for over a month. True, there were appliances within the laboratory that I wished to learn more about, for the Professor had jealously withheld any information except that regarding my study of English. But, somehow I felt that I must flee the confinement I had endured and again breathe pure air with the sky overhead. A month's imprisonment had given me the heart of a woman, and I had caught myself in moods of sympathy with our galley-slaves.

At last I heard the approach of footsteps. I tensed my muscles in readiness. My chance for freedom had arrived.

True to habit, the Professor opened the door and strode a full six paces before he realized I was not within the cell. I was upon him in a flash and bowled him over with one blow. Quickly placing him in the cell, I twisted the crowbar around the door and made a much better fastener than the flimsy padlock. Gathering my toga about me, I fled through the door from which the Professor had just entered. I quickly mounted a stairway.

At the top of this stairs I encountered another door that barred the way. It was a strong wooden panel, and contained within the edge was a new type of fastener, quite unlike the padlock of the cell. A small knob protruded just below a little metal disc. It offered practically no working area for any Roman lever principle that I might have employed. I searched in vain for a solution to the secret, straining against the panel with my strong shoulders. But the door was well made and withstood all my efforts. I later learned that the door could have been easily opened with a small notched metal strip that fits in the little disc above the handle. It was known as a Yale key and I was told that many young United Statesians in the Yale school carried these keys. They were used for private apartments.

Returning to the laboratory, I perceived that the Professor had recovered consciousness. Straightway he began begging for his release. I admired the Professor's nerve, but turned a deaf ear to his pleas, for I thought that he deserved a bit of his own medicine. I also gave him to understand that the only thing that had restrained me from twisting his neck was the fact that he had found the Cask and had restored my life. Nevertheless, I believe he realized that one should not imprison a Roman Citizen.

I searched the room for some other means of escape while Professor Haskell watched me with his hawk-like eyes. Evidently the laboratory had been constructed in the cellar of his home, for I noticed that the walls were of a stone composition and that two small windows were up near the ceiling. They were closed by shutters on the outside. While I was making this survey, my attention was attracted to the construction overhead. Small boards had been used to make the floor above. Although the cross beams between were of heavy wood, this boarding above appeared to be of light material. I also noted two long white shafts hanging a short distance from the ceiling. I later learned that these were heat pipes containing steam. They offered an ideal foothold in a new plan that quickly came to my mind.

With the aid of a small box I was able to mount these shafts. They felt soft and warm to the touch. In this manner I secured a position on my back with my feet against the small boarding above. Using my arms to assist the knee leverage, I was able to exert considerable force, and soon I had a few boards kicked loose from their fastenings. Then it was comparatively easy to push my foot through to the floor above and create an opening large enough to admit my body.

Professor Haskell made one last gesture to detain me when he saw that I had met with success and would soon be free. This last effort resulted in the finish of his brilliant career as it was destined to cost him his life. No doubt his act would have taken my life also, had I not been well trained in the Roman art of leaping. But it was perhaps best that he ended as he did, for I was convinced that he was totally insane.

I suspected nothing when he asked that I hand him his unfinished manuscript of history that lay on the table. He intimated that he might as well work in the cell until some of his servants came and released him. I came down from my perch in the ceiling to grant his last wish. As I gave him his work he thanked me and gave vent to a low sigh. I now see that his sigh was in relief over having his manuscript in a safe place, remote from the scene of my intended extermination.

I should have been suspicious when he tendered me his purse filled with United States paper money. I well know that men of science are not usually susceptible to the passion of charity. However, I accepted his donation as a form of Roman levy. It seemed natural for him to want me to have some funds when starting out alone in a strange land. I could not suspect his real motive; that of having me appear to be a dead thief, if his diabolical scheme had proved successful.

As I turned to go, Professor Haskell ventured that I could extinguish his little electrical stove on which he was brewing a bowl of brownish liquid called coffee. He seemed to think that the coffee would boil over before his servants came to his rescue. Although I was unfamiliar with the mechanism of this electrical device, I wanted to make the Professor as comfortable as possible. I felt like a young husband ready to go out on a party with a purse full of money and freedom in the offing. Any little whim the Professor had in mind was proper to be granted.

Seeing that I fumbled with the electrical stove, he advised me that the best method of extinguishing it was to immerse it in a pail of water. I could pour this from a large red container at hand. Eager to serve him, I poured out the liquid. It was as clear as spring water, but had a pungent odor. I thought this was due to stagnation. Little did I suspect that this liquid was highly explosive. It was called gasoline. A sudden desire to hurry and quit the place made me toss the stove in the open pail from a short distance instead of immersing it as the Professor directed. This saved my life. For immediately the liquid flared up in a great flame that would have consumed me had I been standing over the pail. Leaping back, I was just barely able to clear the fire. Professor Haskell fell in a swoon when he perceived that I had escaped his fiery death trap.

I saw at a glance that I just had time to make my exit through the opening above if I hurried. I noticed that the fire was growing in volume, as I climbed quickly aloft. The spreading flames were igniting the oil that had been drained from the Cask. During the past month this oil had been left standing in a huge open tub and had resumed a normal temperature as all of the carbon dioxide had escaped. The heat was terrific as the new flames flared up like burning pitch.

By a superhuman effort, I managed to crawl out of the opening and roll over on the floor above, while the flames began licking up through the hole. I lay for an instant thinking of the Professor's fate. I would much rather have had the pleasure of seeing him fed to the lions in our dear old Coliseum.

After a deep breath or two, I arose and wandered through many rooms and passageways. Not a soul was in sight and I finally found an outer door that opened on a court in the rear of the dwelling. Unnoticed, I managed to run across this court. With a quick leap, I scaled a high wall that surrounded the estate and dropped into a small street. I later learned that this street was only an alley. The streets of this United States are great wide thoroughfares and even this alley was quite wide compared to our streets of Rome. Hurrying along, I soon came upon one of these spacious thoroughfares. At last I was free!

FREE at last on the streets of the United States! Yet I saw nothing! As much as I would like to tell you Romans of what I first witnessed; as much as I would like to know myself; verily I can remember nothing. Looking back on my first few moments of freedom, I realize that my mind did not absorb any of the many wonders I must have witnessed. When I walked away from the inferno that I had started in the Professor's laboratory, I was blind to everything but the path before me. I had just tasted the first draught of a newly discovered wine . . . . . Freedom! A month's imprisonment in Professor Haskell's cell, followed by my sudden liberation, had made me experience a new form of intoxication.

Freedom! Wine of wines! Freedom, a drink entirely unknown to one who is a Roman Citizen. My blood tingled in great ecstacy as I felt the fire of Freedom's nectar; a nectar such as is sipped only in dreams. Oh, men of Rome, I entreat you to try a taste of my newfound vintage. Bind yourself as a slave unto a stranger for a month only. Mingle and work with the slaves, and when the time is up, verily, I prophesy that you will enjoy a drink many times worthy of your exile. Our best wine, Nassicum, will seem like grape husks compared to this new quaff. You will, as never before, appreciate the freedom of Roman Citizenship. Have a little drink on me!

I have recalled one thing that came to my notice. The street which I had chosen was as smooth as polished stone. But I might as well have been strolling on any one of our rough, narrow thoroughfares in Rome, for all else I can recall. I could not even remember the same street, should I happen on it again. Thus was the condition of my mind.

However, at the next intersection, I was rudely awakened from my haziness. Terror filled my heart. Yea, terror! Even if I am a Roman Citizen! For I was confronted with a fiendish monster. To my intimate friends, that will sound as if I had become like a woman, for it is well known that I fear nothing mortal. My bravery upon entering the Cask should prove my courage and fearlessness. But I defy any Roman—yea, even the mighty Julius Cæsar himself, as brave as he is known to be . . . . . to have stood in my place and to have felt other than afraid. I was alone, a stranger, a newborn babe, in a land of seeming terrors and mysteries. I was encompassed by the unknown. I was confronted with a thing that had the broken unrealities of a phantasm. Hear me, as I tell of what I saw.

My eyes were on my pathway. I had nearly reached the corner. Suddenly bedlam broke loose. A piercing eerie cry rent the air, an uncanny wail of rising cadences. It seemed to pour ice into my veins. At the same moment, a hundred bells started clanging. The crash of a thousand thunders roared about my ears. I looked up to see many Citizens scurrying from the streets. Chaos was everywhere!

Looking down the cross avenue, I beheld an ungodly sight. A huge red land-monster was coming to recapture me. In great lurching leaps and bounds it came directly for me. It was as tall as two men and as long as a small ship. Two great eyes as large as the moon hungrily sought me out from the crowd. Men were clinging to the sides of the monster, urging it on to greater speed. In a glance I saw another similar monster was immediately behind the first. Off in the distance others were following.

Turning to flee, I saw that my path was cut off by still others approaching from the rear. What chance of freedom, I thought, had one in a land where they send shrieking red monsters lumbering after their captives? I closed my eyes and awaited the end. My head was held erect. My chest thrust forward. I stood like a true Roman, unflinchingly awaiting death.

But my time had not yet come!

With a thundering roar that made the very ground upon which I stood tremble, the monster swept past me. Opening my eyes I was just in time to see the second monster pass. I gave vent to a low chuckle of relief. For I saw that my fear was groundless. Again I was a true Roman who laughs when close death is thought to have passed. I saw that what I had thought were huge red land-monsters, were only fire-fighting machines used in the United States. Their piercing cry and clanging bells were only to clear the path. My recapture was not wanted. Again I laughed to compose myself, for verily, I will admit I was afraid.

Noting that the machines had stopped a short distance down the street, I hurried along to examine them better. And what marvels I beheld. They were a sort of chariot . . . . a four- or six-wheeled chariot. And the most amazing part was that they had moved at terrific speed without the aid of horses. Pails, axes, ladders, bells and great sections of fiber pipe adorned the chariots in a very decorative manner. Numerous special fittings glistened like polished gold. At the forward end was the device that propelled the machine in place of horses. It was called the Engine. It breathed in loud, puffing snorts. It was this noise that I had first thought was thunder. This snorting and blowing was cleverly controlled by a man in charge. The Engine was used, even when the machine was stationary, to blow water through the fiber pipes with tremendous force. The other end of the pipes was then directed on the fire, the water shooting out in great fountains. The two large eyes as big as moons were great lanterns. They were used to throw out piercing beams of light whenever the chariot traveled at night. The entire body of the machine was painted a violent red.

Great was the admiration of the United States Citizens for their fire-fighting chariots. A vast throng had quickly gathered to witness it in operation. A stout rope was immediately stretched waist high across the street to hold back the surging multitude. A large black-covered horseless-chariot brought a squad of ushers to the scene. They immediately began their duties of keeping the crowd behind the rope. These ushers were very important individuals, whose sharp, nasal voices bespoke of earlier training as auctioneers or fish merchants. I know now that they were the city guards, called Cops. I had occasion later to know them intimately.

Suddenly there was a loud explosion across the street. Smoke and flames burst from every window of a magnificent stone castle. I realized that this was Professor Haskell's dwelling and that I was the one who had started the fire. I stood in awe, watching the great billows of smoke and streaming tongues of flame as they leaped skyward. Professor Haskell must have kept other explosive liquids in his laboratory, and the fire had taken a little time to reach them. However, the flames were enveloping the entire building and reminded me of our Vesuvius.

Strange to relate, the men in charge of the fire-fighting machines gave no heed to the burning building. Instead they directed their streams of water on the adjoining houses, which were not burning at all. This seemed a very queer way to put out a fire. But I reasoned that the men must have had a certain system of procedure, and I did not feel called upon to offer any advice. Perhaps they also knew the Professor.

Realizing that the house would be a total loss and that everything in it would be consumed, I slowly withdrew from the front ranks. I tried to attract as little attention as possible for I knew that if I was suspected in the least I should be subjected to severe questioning. Even though I felt that I could cope with any inquiry that might arise—for I have had much training in the art of Roman evasion—I perceived that my task would be very difficult, as the last shreds of my identity must have been obliterated in the fire. Little did I then realize that I should later wish that I had stepped forward and made myself known. Some evidence might have then been saved. But at the time, I gave no thought to this. My sole idea was to place as much distance as possible between myself and the fire.

AS I strolled away from the conflagration, I began seeing so many wonders at once that it is hard for me to set them down in any order of recognition.

I have said that I was in the United States. This was true, but I was also in the largest city of this country—New York. I have long since learned, from contact with the many natives of this New York, that it is the only city of any consequence. However, there are a few other cities out in a part of the country known as the Sticks.

Hereafter, I will speak of being in New York, and it will be understood that I also mean the United States.

On my right was a large river named the Hudson. It looked like our Tiber River except that the boats did not have any sails. While some of the vessels were small and similar to our war-barges, there were also others of great size. These massive ships carried many passengers and were called Ferries and Steamers. I thought these must be the biggest ships human hands could construct, but I later witnessed a marvelous colossal floating city, a huge ship made entirely of metal and as great in size as a whole section of Rome. As I said, none of the ships had sails. They were all propelled by an Engine similar to that of the fire-fighting chariots. In fact, the Engine was one of the most wonderful and useful inventions of this land. It was used in almost every conceivable manner whenever energy or power was required.

I suspect that scores of Roman citizens are already doubting my word, for I know that it is hard for one to believe that there could be any ships as large as I have mentioned. It must be equally as hard for you Romans to picture a little metal Engine doing the work of thousands of horses. But I swear on my honor as a Roman citizen that these truths are just as I have pictured them. Pray treat my report with an open mind, for even more fantastic things are yet to come—Ships that fly, Electricity, Radio, Pictures that move and talk, Subways—but wait, I must not go ahead of my story. I only hope that it will be remembered that I have investigated every thing about which I write. I have fully recovered from my first fear of the supernatural. I no longer look upon fire-fighting apparatus as land-monsters. I am counting on the belief of you men of Rome, who saw me placed in the Cask, for I am now in bondage again, because the citizens of this great New York will not believe that I arrived in that manner. These people who have created unbelievable wonders are quick to doubt a lesser wonder. They call me The Ice Man because I tried to tell them that I was frozen in the Cask for a year. The Cops have —but, again I am wandering from my report. Oh, if I were only the Great Cicero! If I could only tell my story in logical order! But I am only Marcus Publius, and you Romans will have to make allowances for my lapses. I will try again to stick to my report.

I was turning away from the river when I beheld the next wonder. Suddenly a strange buzzing noise fell upon my ears. It was like the whirling drone of a giant bee. Looking towards the sky from which the sound came, I beheld five huge birds flying in wedge-shaped order. Even at their great height I saw that the birds were of a strange species, unknown to me. Their peculiar droning buzz beat upon my ears like staccato thunder. As I looked, they began to fall. In a series of fluttering, spinning spirals they came, until I thought they would be dashed on the ground. But even as I watched, they regained their equilibrium and skillfully glided down to skim across the river. I held my breath in wonder as they gracefully came to rest on the water's smooth surface. I stared in open-mouthed amazement over their great bulk and wondered how such gigantic birds could have been caught and tamed. Looking closer I beheld a sight that nearly swept me off my feet. A citizen was actually emerging from the bird's mouth. I could hardly believe my eyes. More citizens came forth—six in all. They gleefully waved to passengers on a passing ship.

At last it finally dawned on me that I was witnessing another strange marvel of this New York. Inventions of the Gods! The huge birds were great man-made flying-ships.

I saw that the flying-ships were shaped very much like a bird in full flight. The wings did not fold up, but remained stiffly outstretched, even after the flight was over. A large wind-mill had been placed in the nose of the device. Another of those Engines was used to turn this wind-mill at great speed; the force thus sucked the flying-ship through the air. These flying-ships were called airplanes. There were no feathers on the devices.

Turning away I made a vow that I would seek a flight in one of these airplanes at the first opportunity. I walked along in deep thought, wondering over the possibilities of an early return to Rome in an airplane. What a greeting I would receive when I glided down on the surface of the Tiber. I would be a hero. Nay, the hero of all times. With my private airplane I could lead great armies on to new victories. With a load of stones, I could easily conquer the strongest cities. I would be made king! Ladies would flock to me in droves; riches and luxuries would be mine for the asking. My poetry would rival Virgil's. Ha! such is the power of thought. Verily, what Roman would not have let his mind run astray in the midst of such super-geniuses of invention as these New Yorkians? Yea, and I am a Roman.

I continued my walk. On my left hand were large castles where one of a select four hundred persons lived. There were four hundred such castles like these in New York, each housing one of this same select four hundred. A short distance away were the towering dwellings of the more common people. The common people had to live four hundred in one house. These buildings were constructed much the same as ours, except that they rose to dizzy heights. High rents also prevailed here, as in Rome.

The streets were filled with long lines of swiftly moving chariots or carts. They were luxurious affairs, gaudy and brilliant in highly polished colors. The expressions on the faces of the occupants bespoke the pride of their owners. Again, the Engine was used to propel these glorious chariots along the glistening streets. Instead of the outer edges of the wheels being bound in hides or leather, as are our chariots, they were covered by a smooth-fitting fabric rim. These rims contained air under pressure. The fabric was called Rubber and was another wonderful discovery of this land. Like the Engine, it had been put to many uses, and because of its flexibility and water-shedding quality, it was of great value as a cloak in the rain. This Rubber could be made either soft or hard and was manufactured into thousands of different articles for daily use throughout the United States. Later on, I found that the Rubber was made into little sticks, five to a package. Many citizens chewed these little sticks as they strolled along. No doubt the idea came from the cow.

AFTER a glance around the horizon, it was perhaps natural that I, a Roman, should next be attracted by New York's native females. Yea, and what an attraction!

My friends in Rome will vouch, that while I have delved deeply into scientific matters I have, with all other Romans, not neglected the physical. Although I was not considered a connoisseur of women, I have had my little moments. For I am a Roman. I dare say that any of my fellow countrymen would have been likewise enthralled should they have witnessed the enchanting creatures that I beheld. I must control my emotions as I write, lest I overdo the thing.

The main attraction of these New York ladies was their style of dress. However, their faces were also very beautiful to look upon, when one took occasion to look. But their costumes were the main enticement.

Each and every one was clothed in a single short garment that fell to a point just above the knees. Just above the knees. . . . I swear to it! This garment was made of a glossy shimmering fabric and clung to the shapely bodies as if the owners had just been immersed in the river and were walking along dripping wet and slippery. The legs of these fair creatures were clothed in a similar fabric but of much thinner texture, that actually being possible. It was like looking through wisps of wind-blown cobwebs. This shimmering fabric was called Silk. It was made in various hues and shades and was truly a godsend to womankind, for it was even more appealing than the nude.

I stood still for a moment, my heart filled with rapture over seeing such a wonderful parade of treasures. These lovely creatures strolled along apparently ignorant of the fact that every movement was clearly defined by the twitching of the Silk. I thought of the feast this sight would be for those friends of mine back in heavily swathed Rome. Even dusky Egypt had nothing like this!

With a chuckle of glee, I thought of you Romans having to be content with watching the damsels meander about the Forum in their concealing Pallas and Stolas. Ah! but here in New York a slight gust showed me visions above the knee. Verily, the dress of the ladies was one of the most revealing sights of this great New York.

My past experience with the fair ladies of Rome had taught me that beauty of the face did not necessarily continue under the Palla. Here in New York there was no doubt whatsoever. For a man could really trust his vision.

Thinking that I would enjoy the companionship of one of these fair exhibits, I straightway tried to make the acquaintance of the next beautiful lady who passed. To my surprise, my only reward was a baleful glance of disdain. By no means discouraged, I approached many others, some even more beautiful than the first. But I was rebuffed at every turn. While some of the ladies did smile and giggle, the net result was anything but complimentary to one who had always considered himself a first-rate Roman lover.

I reasoned that perhaps my mode of dress was distasteful to them. It must be remembered that I was dressed in our native Roman garb and that I was quite different in appearance from the rest of the men in New York. Although my toga displayed my strong, manly arms to good advantage, it was entirely unlike the male attire of this land. The New York male garments were of an unusual pattern. However, they were very pleasing to the eye and made a practical mode of dress for those who rushed about in a great hurry. The upper part of this costume consisted of a short, tight-fitting jacket with long sleeves that entirely concealed the muscles of the arm, if there were any. The lower portion of the garment consisted of two long loose tubes that were joined at the waist. They were called pants. These pants were ideal for hiding undeveloped legs, as they gave no hint whatsoever as to what they concealed. The wide effect at the bottom lent a very substantial appearance to the wearer. I resolved that I would postpone my campaign with the ladies until I could procure similar raiment for myself.

For the first time, it struck me as queer that my own attire had attracted little or no attention. There I was, strolling about the streets of New York clad in my native Roman Toga, with my Tunica underneath, but all the attention I aroused was a casual glance here and there. Had one of the New Yorkers been in the same position in Rome, he would have been an object of interest for the multitude. But here in this country, where men pay little heed to the dress of their women—that is, compared to my interest—what could be expected of their notice of a man's garments?

ANOTHER peculiar thing I noticed at that time was that most of the men were eating smoke. This smoke was obtained by sucking on a small fire at the outer end of a short white stick which was carried in the mouth. I later learned that these white sticks contained a peculiar weed known as Tobacco. The sticks were called Cigarettes. I have since tried to use one of them myself, but the smoke always got in my lungs and choked me.

Evidently the art of eating smoke could be learned in time, for every male in sight had a little cloud of smoke about his head. Even the females smoked while riding in their chariots! But my own personal opinion was that the Cigarette had been over-spoken. As in Rome, many things in New York had secured followers by being over-spoken. They called it advertising in this country.

Oh, yes, another thing! All the male citizens wore odd-shaped helmets. They looked like small inverted bowls and some were folded or creased at the top. I did not particularly notice the ladies' headgear. However I distinctly remember that their shoes were pushed up in the rear on slender peg-like stilts. This gave an appearance of smallness even to large feet.

Speaking of the ladies again reminds me that the eyes of the males were equipped with two small windows of transparent glass. The glass was not unlike our glass . . . from which we make our small perfume flasks . . . excepting that it was so curved as to magnify the objects of vision. The little windows, held in place by two long hooks that fastened over the ears, turned with the head as the eyes were focused from one lady to the next. This was the reason the men appeared not to be looking at the ladies. Only one glance was required to bring the magnified beauty before their eyes. Verily, I yearned for a pair of these little windows for my own use. Even one or two of the ladies wore the device, although these ladies were of the older type. Looking for a desirable husband, no doubt.

I next beheld some of New York's wonderful buildings. They were of tremendous height and faced close to the edge of the street. Nothing will ever stir me as did my first sight of these colossal structures. Like the sheer walls of a mountain defile they towered to unbelievable heights. Their topmost points seemed to scrape the clouds. Ye Gods, what an awful mess there would certainly be if one of them ever toppled over!

However, as gigantic as the structures were, they lacked the grace and beauty of our Roman buildings. There was a marked absence of any columns or arches. Their walls were straight and flat, though pierced by many hundreds of windows, and the whole unit looked like a vast pile of stone blocks. True, there were some of the low buildings that had a few columns in the front, and here and there a small arch graced an entranceway. But the great majority of them were built on the ugly Egyptian style of the obelisk.

I was glad to see that we Romans were very far in advance of these New Yorkers in the art and the beauty of architecture.

One or two of the buildings were in the process of being built, and I had an opportunity to discover a group of marvelous inventions that were in common use in this land. Only a few men were at work on the buildings, but I was able to gather much information from the large crowd watching the construction. The builders were experts at their trade as the structures were completed in a very short space of time. However, the watchers were also experts and they often argued among themselves as to whether the workers were doing the job right or not.

The skeletons of the buildings were made of great beams of metal known as Steel. This Steel was a metal similar to our iron. In fact iron-ore had been heated until all impurities and sulphur had passed off. Then the exact amount of carbon and other secret ingredients were added to produce the required strength of Steel. The Steel was very strong and almost as hard as some of our copper. I was later gratified to learn that we Romans were also far in advance of these New Yorkers in the matter of hardening copper. Oh, there was no doubt but what these New Yorkers had some wonderful inventions and tricks. But I never lost sight of the fact that we Romans had a trick or two ourselves. One or two of the natives did not care to hear about this, so I refrained from bringing it up during the rest of the conversation on building.

The great Steel beams were lifted into place on the skeleton-work by flexible Steel ropes. These ropes were attached to devices such as our pulley-system and the pulling was done by another of those Engines. It appeared that almost everything in New York was made of Steel or Rubber and was called a Machine and was run with an Engine.

Great Machines mixed concrete, made with our Roman cement, and poured it into wood frames built around the steel beams. This method had quite an advantage over our method of hand-mixing concrete.

We should have been greatly assisted in constructing our great *Aqua Marica* if we had had one of those mixing Machines.

One other thing these New Yorkers had learned better than we Romans ever did, was the art of manufacturing glass in great sheets. I was informed that they rolled the glass instead of blowing it. These immense glass sheets were placed on the front of the building to keep the citizens from stealing the various pieces of merchandise on display.

All of a sudden I realized that I had not eaten since morning. Professor Haskell had given me some food during the third hour, but in the excitement of my escape and of seeing so many wonderful sights, I had forgotten all about eating again. Seeing that is was nearly sunset or at least the eleventh hour, I hunted for a place where I could purchase food with the paper money from the Professor's purse.

My nose soon directed me to a place from which the smell of cooking was issuing with a very noticeable and agreeable aroma.

A LARGE sheet of glass covered the front of this eating place and enabled one to whet his appetite from watching others eat. Upon entering, I first noticed a long row of discs that were mounted on short pedestals. On these discs were perched many citizens and it reminded me of my pet monkey. For the citizens all sat to eat.

Unlike us Romans, the New Yorkers have yet to learn how much the stomach suffers when one tries to eat in a seated position. Some day these people will learn that a reclining posture, when one is dining, minimizes the strain on the organs. Some day they will learn that the throat muscles were intended to force the food into the stomach. They will learn of the necessary gland-fluids that are to be mixed with the food as it slowly passes along the throat. Watching their animals eat would tell them that. How these people could stand the shock of dropping food and drink directly into their stomachs was more than I could understand. What, with eating while seated and with eating smoke, it was no wonder all New Yorkers looked so frail and sickly.

Approaching a counter that separated the discs or stools from the rest of the place, I encountered a very beautiful damsel. She wore a fetching blue and white costume and must have been the proprietress. She gave me a glass of water and a card and with a damp cloth she wiped a brown stain from off the polished counter. I demanded meat, bread, and drink . . . any wine she might have, would do.

The fair lady gave every indication that she thought I was intoxicated. At last my difference of dress was noticed. She asked me if I had not been in a "joint." And she wanted to know what kind of a place it was where they sent a "guy" home in a sheet. My friendly smile put a stop to any further questions and she straightway brought forth victuals. Three or four metal eating-implements were also served with the food. But I chose to spend no time learning the use of these tools, for I was very hungry. Besides, nothing will ever be invented that would improve on our good old Roman style of eating with the fingers.

All would have gone well had I not forgotten myself and tried to recline on the tops of those stools. The discs revolved with lightning speed and I fell to the floor. This act caused me no little discomfiture and gave reason for considerable mirth to those assembled. My head had received a good sound thump on the stone floor, and I must have staggered a bit when regaining my perch. This settled all doubts of my sobriety in the minds of my associates.

In a measure, my seeming intoxication proved fortunate. For the fair attendant or proprietress became very solicitous regarding my feelings. I soon gianed her consent to an invitation to show me the city. I told her that I was a stranger in New York. I then quickly showed her my full purse and thereby overcame her fears that I had been robbed and was penniless.

She was overjoyed at seeing my great wealth and she said that I could come back for her after an hour had passed. However, she was firm on the point that I must first purchase suitable New York clothes. She told me to procure them in a place around the corner on Broadway Street. I was cautioned to remember that I could find her in this Restaurant which was on Seventy-second Street. She wrote the address down on a piece of tissue E——— Restaurant, 72nd and B'way, and signed her name. It was Kate.

As I stepped outside of the Restaurant I beheld one of the most wonderful sights I had ever seen. Miracle of miracles! Oh, what a sight for one who had only been accustomed to the dark streets of Rome at night. Here in New York the night-time was brighter than the day. Thousands of brightly illuminated globes flooded the street with light. Hundreds of these small globes were grouped in weird scrolls and designs that spelled out letters. Each letter flickered off and on in rapid succession. It made me think I had stepped into a fairyland. Try to imagine each star in the heavens a hundred times brighter! Tint them the colors of the rainbow! Arrange them in patterns like the mosaic of our Temple of Venus and Roma! Twinkle them on and off! Whirl them around like a thousand comets. Then, my Romans, you will have a vague conception of what I witnessed on Broadway Street at night in this wonderful city of New York. This was called Electricity!

Electricity! Electricity was that "something" that made all of these little globes shine so brightly. Electricity was the force that gave these New Yorkers light, heat, power, music . . . everything that was wonderful. Ah, but what it was and even whence it came, not one citizen in all the land could tell. Nor did anyone know! All they knew was that they had it . . . that they could put it to work. I know that this will sound very silly to all Romans. For we Romans will never rest until we have solved every perplexing mystery. But such was the state of ignorance of the strange people in this very strange land.

I ENTERED the clothing establishment which Kate had told me I would find. It was maintained by an Israelite. With both hands he sold me an outfit such as I desired. It was called a Nifty Suit. I was also supplied with the New York type of footgear and under garments. I was delightfully surprised with my appearance in the large mirror that the Israelite had strategically placed near his cash box. How I wished that my countrymen could have seen me!

Kate was also delighted with my costume when I returned for her at the Restaurant. She spoke of me as being her "Warm Daddy." Almost everything had some sort of heated temperature in this New York.

Kate further remarked that I looked "swell," although I could not see that my new costume had made me look any fatter. I later learned that most of Kate's language was very different from the English I had learned from Professor Haskell. The real New York language was full of tricks and I soon learned that the Professor had out-traded me. Instead of teaching me the native New York tongue, in exchange for my information on the things of Rome, he had taught me a foreign language. However, if I raised my eyebrows, the New Yorkers were able to understand me, but I could not comprehend one-half of the things they said.

Other languages have many words with the same meaning. But this New York tongue had many meanings for the same word. Their word "CAN" was a good example. This word "CAN" could mean: to be able to do; a small bucket; to discharge one from his job; an automobile; the act of preserving; a men's retreat; the head, as when one was "off his can;" the middle rear, as when one was "knocked on his can"; dismissal of one's sweetheart; to rush the purchase of beer; to torment a dog; and as an "oil-can" it could mean either an oil-container or just as easily one's brother-in-law.

Kate also spoke the language of the eyes, and in this art she was a fluent speaker. Her eyebrows were little penciled lines, but they made up in movement what they lacked in hair.

Kate led me to a commercial chariot called a taxi. Riding in it was like skimming through the air while one sat on a bed. Our Roman chariots are very poor riding compared to these smooth-running taxis. We were very fortunate in having selected the one taxi in all New York that had the right-of-way privilege over everybody else. After pushing aside one or two other chariots that would not recognize this authority, we arrived at one of the brightest places I have ever seen. It was the place where Forty-second Street made a crossing on Broadway Street. Kate said that it was the Times Square, but I thought that it had been many times divided.

Kate enjoyed my amazement over the bright lights. She stood off at a little distance so that I could look my fill. Taking me by the arm, she then led me to an even brighter spot—the brilliant, dazzling white entrance to one of New York's cathedrals of amusement.

A soldier of high rank guarded the entranceway of this gorgeous cathedral. He wore an elegant uniform and must have been of the rank of general. Harken unto me, Noble Romans; during the night would be an ideal time to capture this country, as all of the soldiers are placed on guard in these amusement halls. They are so placed to hold the citizens in awe, so that each and every one will line up and pay the admission toll.

All of the art and beauty that the New Yorkers had omitted from their tall buildings had been lavishly applied to the interior of their amusement cathedrals. They are on a par with our Roman interiors. Just inside the doorway stood two or three soldiers of the ranks. They were dressed in uniforms of brilliant hue and they stood quite stiff, lest they wrinkle their garments. Stationed around the hall were many more of these soldiers. They had no lances or spears, but one could readily see from the expression on their faces that they would not be conquered without giving strenuous battle. However, as they were such small, sickly looking soldiers, I believe that I could have conquered a dozen of them at one time.

Magnificent tapestries covered the high walls. These tapestries were made of the silk material and figured with golden dragons whose serpentine bodies shimmered and gleamed in the many-colored lights. A gorgeous carpet covered the entire floor and this, too, was fashioned with golden dragons which seemed to glare at me with fiery eyes as I stepped deep into their soft bodies. Huge vases and odd pieces of furniture with dragon's feet stood at intervals along the walls. Great lamps that looked like suspended waterfalls hung from the domed ceiling. One was swayed with the colossal luxury and lavish grandeur of the place and I had a feeling of being smothered in gorgeousness. I was in a place called the Movies.

Kate and I were finally led to seats in a dark auditorium. On one wall, facing the seats, was a large picture? Why all the fancy trimmings for only a big black-in our seats, I wondered why all of the lavish art display had been made on the outside of the auditorium? Why could they not have put some inside with the picture? Why all the fancy trimmings for only a big black-and-white picture? And then I saw! I heard!

The figures in the painting moved . . . they came to life . . . they talked . . . and it was only a picture! Again that breath-taking fright of the supernatural swept over me. I swear on my honor as a Roman Citizen that I was fully conscious when I witnessed this miracle. Not only did the figures in the painting move and talk, but the picture grew dim and faded into another new scene. Still other scenes appeared, more figures came forth . . . until a whole story was unfolded.

I could not explain this mystery any more than I could explain Electricity. It was a form of amusement whose origin was a secret. The citizens were allowed to look at the picture only while it moved. When the action ceased a curtain was dropped in front of the painting. A squadron of musicians was pushed up from the cellar to keep people from mounting the stage, lest they discover the secret of the moving and talking within the painting.

SOON afterwards a new painting appeared and showed citizens playing ball, a game very similar to our Roman pastime. The only difference was that the New Yorkers played on a diamond plot, instead of on a triangle, and they used twelve players at one time instead of our three.* However, three of the players were dressed in blue uniforms and seemed to be the best players of the lot. For they kept telling the others what to do to improve their game. One selfish player in the center, who probably owned the ball, made all the rest wait until he felt like playing. Naturally, the other players did not get very much exercise.

I noticed that one player carried a stick for hitting the ball. But at the time the picture was painted, this fellow with the club was a poor selection. He could not send the ball to the rest of the players. He even knocked the ball over the fence. Finally, in anger, he ran all around the plot and quit. The witnesses jeered him on to a little hole in the wall. They teased him by calling him a "Big Baby." They also called him "Ruth," a feminine name.

After the ball-game painting faded out, the lights flared up and I had to release Kate from my embrace. We left the auditorium.

Kate proved to be a really wonderful girl. She seemed to have caught the spirit of the occasion, for she tried to show me everything that she thought I would consider unusual or mystifying. I had informed her that I was not acquainted with many things in New York which were common affairs to anyone else. She had deduced this in advance and thought it not unusual as I had recently arrived from Rome. She said that there were many strangers and foreigners in New York. In fact she had personally met many of my own countrymen who had been in this land for some time and who were then in the fruit and, shoe-polishing profession. Kate, like the Professor, spoke of knowing all about our city of Rome and declared that our citizens were well known here in New York. She admitted that they all were in need of knowledge. For, most of them were struck dumb with the strange sights they had beheld. She said that all Romans were called Wops.

I secured her promise that on the morrow I could meet these fellow Romans. Undoubtedly they were some of our sailors whom we had given up as lost over the Great Edge of the Sea. I cannot blame them for not wanting to return to Rome after having discovered this wonderful United States and New York City. It would be a very attractive port for any sailor. What, with these New York ladies parading around the streets dressed in their swaddling clothes, together with all of the wonder of this strange land, it would have been very easy for a Roman sailor to forget that he had a wife back home. Especially would it be so, when he knew that the wife believed him lost at sea!

Stopping in front of a brightly lighted shop, Kate asked me if I would like to talk over the telephone and listen to a Phonograph and Radio. I assured her that such was my fondest desire, for I had visions of our entering another darkened auditorium where Kate could again snuggle close in my arms. However, the darkened retreat was not forthcoming as she instead guided me into a brightly lighted shop.

Inside the shop were many boxes and cabinets. In one of these boxes I found the Telephone. It was a large cupboard-like box, and contained a small Electrical device by which one could converse with another at a great distance. Calling in a loud voice was unnecessary, for one could plainly hear and speak in a normal tone. I distinctly heard a feminine voice ask me for a number, but before I could think of one, she selected another person's offering, to perform her trick, and told me to retire as she was busy. There was considerable buzzing going on in the bell-shaped ear-piece. But this noise would no doubt be soon eliminated and one would be able to converse over a busy wire without disturbance; if they were quick in selecting a number. Kate informed me that the lady's voice I had heard was many miles away and had been carried by Electricity over two small metal wires. There was no way of proving this statement at the time, but I will say that I looked behind the cupboard and found no one hiding.

As I came from the Telephone box, Kate showed me another much smaller box. It was the Radio. Again I heard voices. This time there was a man singing to his mother in a sad voice. He cried for her like a calf. It was a very good imitation, but the music was very poor and uneven. Most of the notes were off key and very flat. However, this was to be expected, Kate said, as the Radio was a new invention and not fully developed at that time. Like the telephone, the voice and music were carried over the same distance, but with Radio there were no wires strung along the way. Kate said that the noise or music was hurled through the air by Electricity and caught by the Radio in the shop. The man who owned the shop said that the Radio was "in tune" with the sending equipment. Again, I had to take their word for it, but my personal opinion was that the things were very much out of tune.

Kate was a master conjurer and took delight in pointing out a third box in which the music had been caught and stored up for future hearing. I know that my fellow Romans are thinking that I am a great liar when I tell of such seemingly impossible things as these. I assure everyone that the actual devices were before me and performed just as I have stated. However, I am at a loss to tell how they worked, and I believe that neither Kate nor the shop-man could have done much explaining, had I been able to question them at any length.

I, myself, hardly believed in the last mechanical box, the Phonograph, but the shopkeeper convinced me beyond all doubt with a fourth box. He called this last device a Dictaphone. He requested me to speak a few words in the attached tube. He then made a certain mystic motion with his hands and, lo . . . I again heard my own voice speak from the box and say the words I had already spoken. Verily, I heard my voice speak the very same words over and over again. He told me that a thousand years hence my voice would continue repeating the words from the box, even though I would be long since dead. Ah, my Romans, this was indeed a very strange land of very strange people who had very strange boxes. The Dictaphone, which captured my voice, was the greatest thing of all. I could listen to it for hours.

I would have stayed and better examined this marvelous Dictaphone, but Kate, in her characteristic New York rushing manner, led me outside the shop. She said that I had not seen anything compared to what she had yet to show me. She referred to more New York inventions, for she was then wearing the typical New York dress.

Under her guidance we came upon a large hole in the street. It was covered with a hood-like canopy and was the entrance to an ingenious subterranean chariot-train called the Subway.

We sped down the brightly illuminated steps of this hole until I thought we surely must have reached the realm of Hades. At a very low level we came upon a great open place. On either side in deep channels, I saw swiftly moving trains made up of many wheeled chariots. They were much longer than the Taxi and traveled at terrific speed. I had thought we were to watch their operation, but before I knew what had happened, we were thrust inside of one that had quickly stopped at our feet. In an instant we were whisked away in the darkness. I had become quite fond of Kate by this time and trusted her implicitly, but nevertheless my heart was riding in my mouth during the entire journey underground.

I FELT a sudden change of atmosphere and Kate told me that we were traveling under the bed of a River. Under the bed of East River we were boring our path! I could hardly believe it! Great ships were plowing their way on the surface of the river above as we rushed through the darkness under the water. The roar of the train wheels was deafening on the ears, but I liked it, for Kate swayed close to my side and gave me reassuring squeezes on the arm. The inside of the train was well lighted and very pleasant, except that most of the passengers had been eating garlic and had neglected to chew their cloves.

Leaving the train at a place called Atlantic Station, we immediately boarded another. This new train ran underground for a while and then emerged to the surface and thence to a high level built upon Steel stilts. The train was no longer called the Subway. It was to be known as the Elevated, while it ran on the stilts. I was much happier to be nearer to Heaven than to Hades. I hoped that the attendant up front would not forget how to steer.

In about one-half hour we had traveled what would have been a day's journey in Rome. Soon we came upon the city of Coney Island. Evèn at that time I could hardly believe that I had been set free only that morning. I had traveled many miles unto a new city and had seen the most marvelous things of my life, and the hour was only half-after ten by the New York reckoning. As Kate remarked, the evening was young "yet" and "I ain't seen nothin' yet."

Coney Island was a gorgeous dream city that had been especially built for the encouragement of young couples in love. It proved to be an ideal place for one to become intimately acquainted with his fair lady. However Kate and I hardly required any stimulant to promote our congeniality. For I had long since marveled over how quickly we had come to know and understand each other's feelings during the short time we had been together. Only a few hours past, we had not known of each other's existence, but our close companionship through those short adventure-seeking hours had bound us together like friends and lovers of long standing. Our unrestrained emotions, bursting forth as we discovered new adventures at every turn, had opened our hearts and torn down the usual barricade of poise one generally affects when in company with one of the opposite sex. It was surprising how quickly a stranger could meet and become an intimate friend of a New York lady. Nevertheless, I found that our Coney Island visit added strength to our mutual bond, and we both felt as if we had known each other since birth.

During the hour that we toured the city of Coney Island, I saw so many marvelous sights and strange devices that my head was muddled in a myriad of dancing Electric lights amidst hundreds of hot-meat vendors and countless squawking advertisers of gambling.

One thing I will never forget was our many rides on breath-taking death-defying devices that were known as Coasters. These Coasters were built up on high stilts, oh! much higher than the elevated stilts. They were also built down deep like the Subway. Their paths continually dropped from high pinnacles to deep ravines below. It was as if the builders had not been able to make up their minds as to what they were trying to construct, Subway or Elevated.

The principle of the Coaster was that each man passenger had to clutch his woman companion tightly as she squealed in fright on the top of each hill. A long dark tunnel had been conveniently placed on a nice level stretch at the base of the last hill. By the time the tunnel was reached the male escort had become well acquainted with his fair lady's outline. It seems needless to report that when we found ourselves shot into the tunnel in close embrace, we straightway eliminated any further delay of our inevitable kiss. In fact we made up for any time that might have been lost. I want to say right here, that, even though Kate's words usually were only short, meaningless ejaculations, I felt that she possessed an eloquence of expression, such as I had never attained in any of my many-worded speeches in Rome, when she concluded each kiss with her, "Oh, Daddy."

The Coaster was a wonderful invention!

Later, Kate gleefully introduced me to another United States or New York wonder-box. It was a device that required only an instant to paint one's likeness. It was called the Photograph. It was the most wonderful box of all the boxes . . . even more wonderful than the Dictaphone.

Kate and I were led to a seat in a toy airplane, while an attendant made some little movements over his box-device. In less time than it takes me to write, he supplied us with six miniature paintings that were most exact in detail and likeness. Nowhere have I ever seen such marvelous work. Nothing will ever equal the lightning speed with which we were painted. All my life I had longed for a portrait of myself, but never did I think I would become rich or famous enough to have my desire fulfilled. The six paintings from the wonderful Photograph-box I gave to Kate for safe-keeping. They were, by far, the greatest inventions of all this invention-blessed land.

During the return journey to New York we found the Subway to be considerably less crowded and we were able to ride in seats. I had not noticed that there were seats on the first trip. Kate snuggled to my side and allowed her head to droop on my shoulder. I reasoned that she had at last become tired and sleepy and I had visions of our retiring to her abode. But in this I was mistaken, for we had no sooner reached Times Square Station than she was up on her feet, bubbling over with new enthusiasm and lust for adventure. What stamina these New York ladies possessed!

We hailed a passing taxi and entered its passenger compartment to settle in the deep luxury of the seats. Kate directed the driver to take us out Lenox Avenue to One-hundred and Thirty-fifth Street. I had become so acclimated to being ridden swiftly hither and yon in New York, that the taxi's high speed no longer thrilled me. However, I found a new and better thrill could be had in a taxi. It was a marvelous place in which one could promote unrestricted love-making with one's fair lady while flying through the main streets of New York. The Coaster had taught us to make the most of every opportunity. Likewise, most of New York's citizens must have been in the same mood, for I noticed that every taxi we passed contained occupants similarly entwined. I gleefully thought of how it would appear in Rome if all men tried to caress their maidens while riding along the Forum in chariots. However, it was surprising how quickly one could travel while engaged in this artful occupation. Just when things were becoming interesting, we were interrupted by arriving at our destination.

After we alighted, Kate told me that she was taking me to a place called a Night Club. It seemed that any stranger's evening in New York was not complete without a concluding Night Club visit. I was willing to follow Kate unto the last, last adventure, wherever she chose to lead, for the promise in her eyes was such as one sees when the trail is near the end. My only fear was that the Professor's fast diminishing purse would not stand the strain much longer.

The Night Club proved to be a very large Restaurant in which many citizens and their ladies were having little feasts at secluded, independent tables. A squad of African musicians furnished weird barbaric notes from odd-shaped trumpets and a large drum. The noise beat upon the ears with stimulating rhythm and seemed to have a hilarious effect upon everyone present. A chorus of sparsely dressed Ethiopian females were executing fantastic dance steps and body wiggles in a little open place between the tables. The free spirit of congeniality, together with the intoxicating music, steeled everyone to a high pitch. This tempo was undoubtedly necessary to assist one in downing the liquid these New Yorkers had to drink. The drink was called hootch and it had to be diluted with a portion of mineral water and lemon juice before one dared place it in one's mouth. It was always drunk in a single quaff or gulped down as speedily as possible, lest one's grimaces became permanent. I think the stuff was made from this unknown thing they called Electricity.

I longed to show these New Yorkers our Roman art of sipping drinks; but after drinking my first glass of hootch I, too, realized that their method of gulping was for the best.

As the evening sped along into the last hours of night, I felt as if a veil had been lifted from my eyes. The lights seemed to have brightened in color, the dancing figures seemed to have more animation and less raiment on their bodies as they floated across the floor. Everything seemed to be toned into a beautiful, harmonious blend, and Kate's ravishing beauty seemed more vivid than ever as she openly kissed me across the table. I realized that we had had many drinks of hooch, and although I was not in any sense drunk, I certainly was pleased with the outlook on life in this wonderful New York and the United States. However, I decided to control my thirst lest I became totally intoxicated and would be unable to survive the climax of a most wonderful evening.

Oh, what a climax it was. When it finally came upon us it was nothing like what I had expected. The brightness of the evening was immediately snuffed out. Tragedy crossed the dance floor in the form of a powerfully built Ethiopian who made some slurring remark to Kate. This was the beginning of the end!

Quick as a flash I was upon the slave. He must have underestimated my condition, for he was unprepared for my onslaught and I quickly and easily lifted him over my head and hurled him through the air. He crashed with terrific force upon the startled musicians and scattered them and their rigging to the four winds. This action brought forth screams of terror from all the ladies, and chaos reigned throughout the hall. From that time on, I was busily engaged in battle. In a short space of time I had piled up an amazing heap of humanity on the musician's platform. Verily, I would have conquered all of my enemies, had they not brought into play another insidious New York invention, called the Gat, or Pistol. Before this new weapon, I went down in defeat.

These pistols, or gats, were diabolical things of steel. They were short, compact little devices that spat forth flame and fire and sent lead pellets hurtling through the air. Without these weapons, one was helpless. I sank to the floor writhing in agony. Three or four pistols had used my body as a target. I had a vague recollection of some New York ushers or Cops appearing upon the scene, but at that point I fell into a swoon.

Upon awakening, I found myself again a prisoner. For a while I was in a hospital but I was later transferred to a cell in the New York jail. At first my wounds were very painful and I feared that I should die before I could again see Kate. However, my strong well-kept body soon healed and I was ready to depart. But the Cops insisted that I remain in my cell and there I languished for three months.

While awaiting my release, I had the opportunity to observe and study two more marvels of this land. They were paper and printing.

The paper was similar to our *Liber*. Like our *Pugillares,* it was made of wood and was in common use. But it was very different from these *Pugillares*, which were only wax-coated slabs of wood. The paper was the result of boiling wood until it became a pulp and then pressing this mass into thin sheets. It was as enduring as our Papyrus from Egypt and after it had dried out thoroughly, one could fold or bend the stuff without having it crack or become brittle.

None of the paper came in rolls, but instead was bound in little small leafed booklets. On the paper was the other invention called printing. It was a quick way to make many copies of the same writing.

This printing was accomplished by using large embossed plates similar to our coins. These plates were coated with an ink-fluid and lightly touched on the paper with a machine. The resulting impression was printing. Long speeches and even paintings were produced in this manner. During my stay in the jail I had ample opportunity to read many books and news bulletins.

My association with my fellow prisoners has given me a thought that I believe will be helpful to you Romans when you demand my immediate release. From listening to the conversation of the men about me I learned the names of some of the prominent men in this country. Knowing that a messenger will be dispatched with all haste as soon as this report reaches Rome, I am giving the names of the men most spoken of, so that it will be known to whom the order of release should be addressed: Gene Tunney, Cal, Hornsby, Babe, Al Smith, Lindy, Hoover, Jack Dempsey, and Will Rogers.

After three months in jail I was given a trial. Such a trial as it was. It was just a foolish pretense of justice, the sole object being to have all concerned establish themselves as public speakers of great renown. I was not allowed to even make a speech. One blustering citizen made some highly insulting remarks about my mentality. I took immediate offense and grappled him about the throat, but the Cops sprang to his rescue and I was forced to listen in silence. Upon his word alone, I was sent back to my cell. He called me the "Ice Man" and said many other things which I will not repeat, lest Rome declare war with this country. I was merely the ball in a game. I was tossed back and forth from cell to court while the lawyers, and some citizens called Alienists, were enabled to show their skill at the pastime.

Throughout the trial I made vain efforts to establish my identity but was repulsed at every turn. Finally, I was judged insane and committed to an asylum. I am now in this asylum called B——— While here imprisoned I have written this report, in the hope that it will in some way reach you Romans and that my release will be speedily effected. I advise you to send a large army with the messenger, for these New Yorkers are very obstinate in their views and say that you Romans are a "dead" race of people.

I will bide my time and await the coming of a likely looking visitor to whom I must intrust the delivery of this report.

Signed,
MARCUS PUBLIUS.

P.S. I have not heard from Kate since the disastrous climax in the Night Club. I fear that she was mortally wounded for I know that she would have appeared at the trial to help prove my sanity. One of my associates in the jail thought that she was in the gold-digging business. I pray that she is alive and is out digging this gold, so that she will soon have enough to purchase my release. Otherwise I must wait and hope that this report finds its way to my countrymen.

MARCUS PUBLIUS.

Author's Note: Again we remark that some may question Marcus Publius' sanity and our action in securing his release from the insane Asylum. But, lest someone also question the sanity of the author, himself, it must be remembered that out of the large sum he received for this work, the reader has helped to defray a part when he purchased this magazine. W. W. D.

THE END

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a text-book. Moreover, most of the stories are written in a popular vein, making it possible for anyone to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge of science.

1. Could an airplane use its propeller for traveling through interplanetary space? (See page 1003.)
2. Would a rocket exert greater propulsive force in the vacuum of space than in the air? (See page 1004.)
3. What story is told about Tycho Brahe and the Nova? (See page 1034.)
4. Is that nova now visible? (See page 1034.)
5. What is the story of the nova seen in Perseus in 1901? (See page 1034.)
6. If two suns approached too close, what disastrous reaction might occur? (See page 1035.)
7. What are some theories of novae? (See page 1036.)
8. What is the characteristic of the motion of multiple suns? (See page 1041.)
9. How could an explosion be identified as due to hydrogen and air mixed? (See page 1051.)
10. What definite ration of atomic weights can be deduced for hydrogen, copper and gold? (See page 1051.)
11. What diseases are attributable to lack of vitamines in food? (See page 1058.)
12. What are the four essential elements of food exclusive of vitamines? (See page 1060.)
13. What diseases are propagated by insect carriers? (See page 1069.)
14. What is a great unsolved problem in the archaeology of South America? (See page 1070.)

The Man *from*

By L. Taylor Hansen

Author of "What the Sodium Lines Revealed" and "The Undersea Tube"

SO much wonderful work has been done by astronomers in recent years that this story seems particularly timely. The author has undoubtedly used good authorities to aid him in his work, for he offers in some sections of his manuscript exceedingly interesting treatment of the stars and novæ. "The Man from Space" is a unique story of interplanetary travel that shows a good deal of ingenuity, good thinking and good writing. We recommend it without any hesitation to our readers for their careful consideration.

"FROM the days of superstition when the sudden appearance of a new star portended the birth of a great man or a terrible destruction by war and plague, up to the present time when these phenomena are studied with telescope and spectroscope, the brilliant flashing bursts of novæ continue to interest mankind."

Professor Kepling hesitated and glanced suspiciously over his class. It was a warm afternoon—langorously warm. I yawned and looked at my frat brother, Jim Turner. We had been to the same dance the night before and I was wondering if he would manage to fight off the tendency to go to sleep, as well as I was doing so far. To my surprise Jim was leaning forward eagerly, drinking in every word. I remembered then that he was a sort of "bug" on astronomy, nursing a hopeless wish that he had been born a century or two later so that he might travel to other worlds. I shrugged my shoulders as the cultured voice of the gray-haired professor droned on.

"History has recorded many instances of the appearance of novæ, but the first one to be studied by a mind more scientifically than superstitiously inclined was observed by Tycho on the evening of November 11, 1572. It seems that in going toward his home on that night, the celebrated Danish astronomer saw people standing out in the streets, staring and pointing at the sky directly overhead, where he was astonished to see an unknown star of surpassing brilliance. The new star even outshone the planet Jupiter. In fact, there was not another star in the whole heavens that could be compared to it.

"He had of course, only imperfect instruments with which to study it, but with these he determined as best he could its exact location, and faithfully followed its subsequent changes. It kept on brightening until at last it even shone in the daytime. Finally, however, it began to fade, turning red as it did so. In March it disappeared from the interested astronomer's searching sight and has never been seen since."

My eyelids were getting heavy. I jerked them open, determined to get the points of the lecture for I knew by Jim's fascinated stare that he would be "raring to go" for a good discussion as soon as the bell rang.

"There have been others of less brilliance," the well-modulated tones droned on, "but the next famous nova occurred on the evening of February 22, 1901. An amateur astronomer in Edinburgh was the first man to see the new star blazing in the constellation of Perseus. He telegraphed the news over the world. Luckily, the heavens had been photographed on February 19th and the spot where the star now shone, showed no trace in the photograph.

"Within a few hours of its discovery, however, it was ablaze—outshining Capella and exceeding first magnitude. But like a terrible conflagration, it burned only a few days and then began to die away with a red glow, its light diminishing and then flaring up again spasmodically every few days, though none of these revivals equalled the splendor of the first outburst. Finally it died away to ninth magnitude.

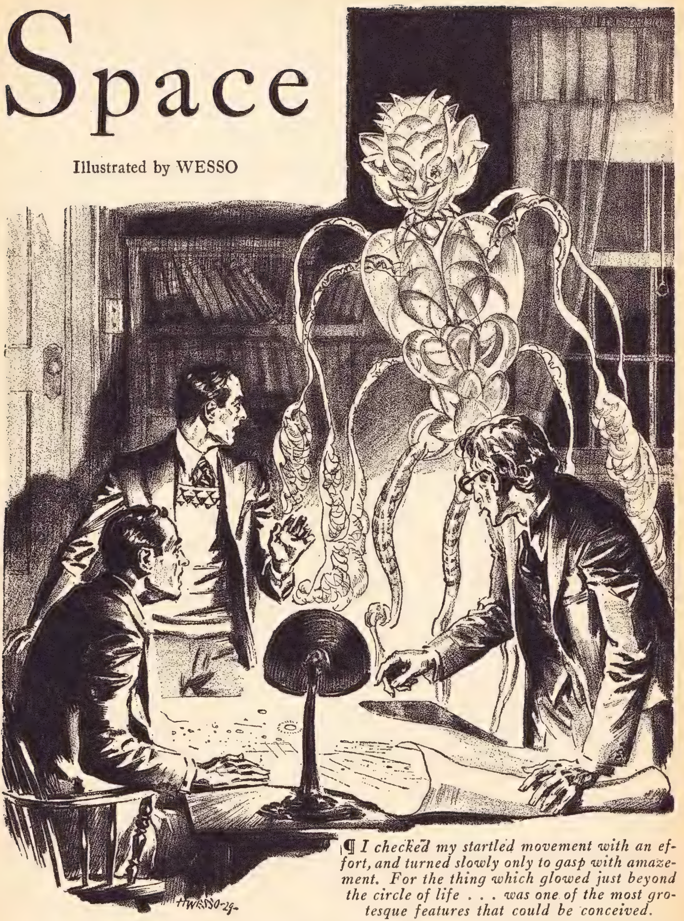
"This time, however, there was a sequel to the story. Some six months later photographs showed that this star was now surrounded by a spiral nebula which spread from it like an expanding wave. Four condensations seemed to gather in this fiery ring and revolve about the main nucleus of sun, but in time these condensations faded from sight and the nova became only a faintly nebulous star of less than ninth magnitude."

I CAUGHT myself nodding and straightened quickly. If only that man could speak more roughly, but the combination of late hours and a lulling voice was liable to get me yet. . . .

"The question naturally arises—how do these terrible conflagrations come about? In answer, several theories have been advanced. The first one proposed was that two suns traveling in opposite directions through the uncharted realms of space had collided. A direct head-on collision would of course be rather rare, though quite possible. But novæ are not rare spectacles. Every year the telescope brings us the tale of more novæ, even though most of them are at far too great a distance to be seen with the naked eye.

Space

Illustrated by WESSO



¶ I checked my startled movement with an effort, and turned slowly only to gasp with amazement. For the thing which glowed just beyond the circle of life . . . was one of the most grotesque features that could be conceived.

"Let us suppose, however, that some of these suns, instead of actually colliding with each other, simply pass a little too close. Large bodies such as suns are extremely dangerous to each other. They have terrible tidal pulls. Suppose that each should come close enough for the tidal pull of the other to tear open its photospheric envelope. The result would be that the incandescent central masses would collide like two terrific clashing waves of fire.

"A second theory, advanced by Seeliger of Munich, was that a collision between a blazing star or sun and a vast dark nebula or swarm of meteors—remnants of some destroyed system—would cause such a spectacle as a nova presents. This theory underwent modifications from others until it was finally proposed that a dark or burnt-out sun, plunging into a swarm of meteors, would have its dead surface heated to incandescence, and if the sun was of vast size, it would then appear as a new star.

"A third theory supposed that a huge dark star had struck a sun surrounded by planets and that each successive rekindling of the blaze was the running down of a new unfortunate planet.

"In a fourth theory, however, the French astronomer Janssen discards all collision theories and puts forward the idea of an explosion of the sun caused by chemical changes within the sun itself. If oxygen exists in the sun's chromosphere, and we know that it does, then should the temperature tend to drop to a critical point, the combination of oxygen and hydrogen would cause a terrific explosion. We know that the temperature of our own sun keeps varying from day to day. It makes us shudder to think what would happen if our sun should be suddenly transformed into such a laboratory."

Jim was leaning forward with strained attention. I didn't blame him. Those last words made me glance almost involuntarily at a shaft of sunlight which was lazily streaming across the floor. . . . The soft voice continued:

"In any event we can imagine a terrific flash, blinding all human sight forever, and then within ten minutes a wave of all-enveloping flame. . . ."

I glanced back at the lazy yellow shaft of sunlight—but this time my eyelids drooped in spite of me as I heard the lulling voice droning on from a greater and greater distance. Finally I shook off the tendency to doze and opened my eyes. The first thing which they fell upon was the lazy shaft of sunlight. Somehow it looked different. I rubbed my eyes and stared again. There was certainly something queer about the color, but when I touched Jim's sleeve, he only shook me off impatiently. I did not have long to puzzle over it, however, when the bell rang and Jim fairly leapt over the space between us, grabbing my arm and jerking me to my feet.

"What a lecture! But what do you think caused the nebulous ring and the condensations?"

"Don't know," I murmured as we pressed out past the other students into the hall. "But I do know that I was sleepy. I had to fairly fight myself, and that in spite of the interesting facts of the lecture."

"You would," he laughed. "But what a sight that would be from a ring-side seat."

"Might have an uncomfortable resemblance to those warm regions some of us are supposed to visit sometime without the wishing."

"But joking aside Bob, that would put a sure and sudden end to our little planetary system, wouldn't it?" he laughed.

"By the way," I remarked as casually as possible, "doesn't the sun look a little peculiar?"

Jim snorted.

"So old Kepling has you worried?"

"I mean it. I didn't go to lab. yesterday, so I'm asking you if there is some unusual atmospheric condition such as a big fire somewhere near that would cast an ash veil. It just looks—well—strange."

"Then the trouble is with your eyes. If you took a sip from Brown's hip flask last night, I would advise you to lay off."

We walked the rest of the way toward the house in silence. I did not have a class for the rest of the day, but Jim, I remembered, had mentioned a quiz in calculus. Finally, on the porch, I touched his arm.

"I suppose you will be studying instead of playing a set of tennis with me as usual?"

"No, the quiz has been called off."

"Called off?"

"Yep. Somebody stole the questions."

"Holy cats! Who'd be fool enough to do a thing like that? Somebody doesn't care much about his diploma."

"Don't know. Lots of things have been disappearing around the laboratories. Kenny says that it is a ghost."

"Well he's kind of nutty anyway. I suppose that he claims to have seen it?"

"Yes he did. He says that he came upon something silverish and shining the other day hanging over the botany microscopes, and that the thing, which he could see right through, just faded out when he came into the room."

"Well whoever heard of a ghost taking up its residence in a scientific laboratory, and stealing calculus questions? Evidently my eyes are not the only ones around this place that are in need of an examination!"

IT was well toward midnight that evening when I next saw Jim. Then he came bursting into my room with his eyes fairly popping out of his head.

"You remember what I told you about the calculus questions?" he asked when he could get his breath.

"Yeah," I yawned.

"Well, I can't tell you about it, but you must come with me right away. Kepling's in his office, waiting for you."

"Say, now listen. I don't know anything about those questions. Besides that, I don't take calculus."

"Oh dry up! No one is accusing you. Kepling isn't a mathematician."

"All right," I grinned with better humor. "I suppose it's about the ghost then."

For all my teasing, however, the information that I could get out of Jim as to why Kepling had sent for me was extremely unsatisfactory. I simply had to smother my curiosity and follow my friend in silence as he made his way past the night watchman and through the darkened halls of the science building to where the light shone through the transom of Kepling's office.

"Come in," answered the cultured voice behind the door, in response to Jim's knock.

"Did you see it again, Doc?" my friend's voice inquired anxiously as he stepped through the doorway in front of me.

The silver hair of Kepling's head tossed in a negative answer as he turned around in the glow of the student lamp that streamed down upon him and motioned us to a seat.

"Mr. Hunt," looking from Jim's anxious face to my puzzled one, "I asked Mr. Turner here to bring me his most trusted friend, but to give him no information as to why he had been summoned."

"He was mum all right," I grunted, hardly realizing in that moment the great compliment which Jim had paid me.

"He told me that he had already informed you about the strange presence which seems to have been hovering about this science building for some time."

I nodded silently.

"He also told me that he had informed you about the main irregularities that have been discovered."

I nodded again, wondering what the man was driving at.

"It was not until tonight that I saw the creature. In fact, we both saw it. Mr. Turner was discussing the subject of novæ with me here at my desk—and in particular the most interesting Nova Persei. I had just been sketching the star with its nebula and the condensations, in illustrating what is to my belief a theory of planetary conception, when we were disturbed by the feeling that we were not alone. Glancing up, we were both somewhat startled to see a tall, shining, indescribable thing before us.

I put out my hand and touched it.

My fingers were resisted by a soft, damp or clammy substance which moved away sharply under my hand as if that touch had hurt it, though the movement of my hand was exceedingly gentle.

It is my belief now that the creature would undoubtedly have tried to get into communication with us, if I had not taken the initiative. Instead, it faded from our astonished sight—leaving the room absolutely empty."

"But surely, sir, you do not believe . . ."

"That it was a ghost? No. But I do believe that we are entertaining an extra-terrestrial visitor."

"You mean," I gasped, a thrill creeping coldly up my spine, "you mean a man from . . . space?"

"Yes."

"But why?"

"Because of the strange composition of the creature in the first place, its method of locomotion, and its ability to fade from sight. In the second place, I would say because of the interest which it takes in such things as microscopes, astronomy charts, calculus questions and my poor drawings of Nova Persei."

I nodded slowly.

"Cast here among the creatures of an unknown civilization, this being is just as cautious, as curious and as half-frightened as we would be in similar circumstances."

"Did it look man-like?" I asked thoughtfully.

"No. Not at all. But that does not mean that it lacks intelligence. Remember that we are entirely the product of our own planet, from our lung capacity to the pressure which we can bear upon our bodies. Then take note of all the types of life which this single earth has evolved. We are forced to the conclusion that nature is very generous with her patterns. By the law of averages alone, we would probably search far among types of life on other planets for a pattern just like ours."

"Of course, I hadn't thought of that."

"But let's figure out a plan, Doc," Jim's voice put in impatiently.

"Yes, what shall we do about it?" I asked. I was never very long on the arguments. That was Jim's strong point. Mine was action. And here he was voicing my sentiments.

"I have not outlined a very definite plan . . ." Kepling began.

"Suppose Jim and I catch it!"

The white hair tossed a quick negative.

"Such a proceeding would not only destroy all the confidence which it has gained by watching us, but would be liable to be highly dangerous as well, because we do not know what weapons it might have."

I NODDED regretfully. It was good advice, but I couldn't help wishing that he hadn't thought of that.

"Besides," he continued, "I have an odd feeling that this thing may know the secret of invisibility, thought-reading or possibly the fourth dimension. In fact, young gentlemen, when dealing with extra-terrestrial intelligence we must expect to meet with something beyond or undiscovered by our present knowledge-limit. For we are but the ignorant offspring of our own planet and once out of that pale we are adrift on an unknown sea."

"Then what shall we do?" I asked.

"In view of the fact that this being was attracted by our little discussion of Nova Persei, I propose that we continue the talk and further it by more charts and drawings. Possibly this will bring him back."

"But after he gets here?" I persisted.

"We will attempt to communicate with him."

I nodded slowly, noting that the doors were closed. Kepling had said something about the fourth dimension. I looked at Jim skeptically, but his eyes were on the old professor, and he seemed to have forgotten my presence utterly in that rapt mood, which I had seen come over him so often during an interesting lecture.

"It won't be hard for me to talk about Nova Persei, for that is one of my hobbies, just as novæ are one of my special fields of research. Perhaps it will become more fixed in your mind if I point it out on our large chart, while the action of so doing may also serve the double purpose of attracting our strange visitor."

Adjusting his glasses, Kepling peered through some charts scattered over his desk and selected one of the largest, unrolling it slowly and running one thin, sensitive finger along the Milky Way.

"Here it is in the constellation of Perseus," he nodded, the finger stopping over a dot and then dropping back to another dot.

"This is Argol. You remember my lecture on Argol, sometimes called the 'Demon Sun' because of the huge planet that eclipses its full light at regular intervals?"

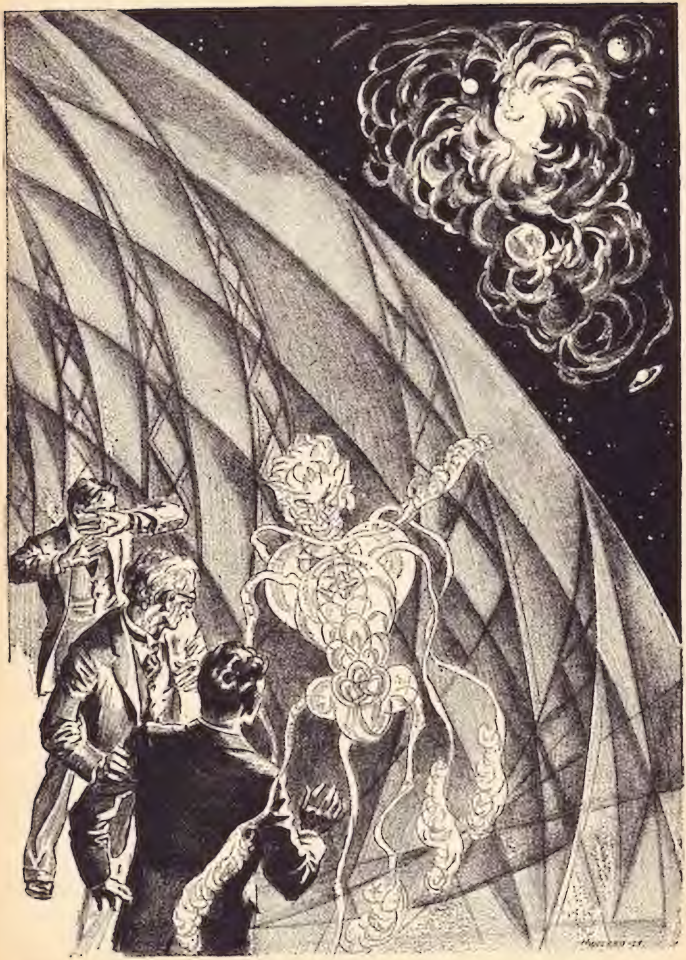
I nodded, recalling the interesting discussion that Jim had hurled at me right after that lecture.

"The ancients thought, of course, that Argol winked—in fact . . ."

The sensitive finger curled up from the chart and the white head was raised slightly as if listening . . . Then suddenly I noticed a strange silvery light that seemed to shine on the wall above the desk, over the shaded portion of the student lamp.

"Slowly . . . turn slowly!" Kepling warned me as I started to whirl around in response to that instinct which made one search immediately for the cause of an unexplained fact. "Remember, it must not be frightened away again."

I checked my startled movement with an effort, and turned slowly only to gasp in amazement. For the thing which glowed just beyond the circle of light rays from the lamp, was one of the most grotesque creatures that one could conceive. It stood perhaps seven feet high—or rather, I should say floated, because apparently it had no method of support, but moved as if our atmosphere had been so much heavy liquid. Like one of those beautiful, self-luminous denizens of the deep seas, it glinted with a faint silvery light, its nine tentacles hanging down like a drooping flower whose long, faintly-waving petals faded out into shadow. At the same moment, I was aware of a strange, heavy perfume that seemed to suddenly fill the air of the little room and engulf me like



Flashing in a trillion sparkles, the wave of white-hot gas was reaching for the first planet a tidal wave from the sea. I put out a hand to touch Jim's sleeve to warn him about that peculiar odor, but my arm seemed to become unbearably heavy. It dropped limply back to my side, Jim leaning forward in his chair, the white head of Kepling lit by the streaming rays of the student lamp, and the silvery thing which floated just beyond the circle of light, all became fixed like figures of wax or the sketches of a madman on an illumined canvas and then suddenly swam together in a crazy whirl, as I fell forward into the dark pit of unconsciousness.

It must have been days before I again came to. Perhaps because of my unexpected movement, I received more of the mysterious drug than either of my two companions. At any rate, when I next opened my eyes, their anxious faces were bending over me. I glanced at them and smiled, when suddenly I caught sight of our strange surroundings, and the smile faded into an expression of wonder.

"Yes, we looked the same way when we first glanced around," Jim grinned.

"But . . ."

"See, Doc, he is getting interested. I said he would come around all right."

"The coming around isn't the point in question!" I answered, sitting up and staring at the glass palace surrounding us—my eyes roving from the lustrous, silver mattress-like rug upon whose tufted fibers of moon-lit cobwebs I had been resting, to the glowing draperies above our heads that twined backwards like so much gossamer-thin spun glass, glistening as they moved in an unfelt breeze.

"Doc thinks that the machinery which propels her is up there, but we can't find any way of getting up," Jim volunteered.

My eye dropped back down the sheer glass-like walls which glowed with the same weird silvery light that our visitor had emitted in the office of Dr. Kepling.

"But how in . . ."

"We know nothing more than you do," the cultured voice of the old professor assured me. "We were also drugged in the office. We both saw you fall but were already powerless ourselves. During our state of unconsciousness we were evidently kidnaped."

"He might have invited us to go," I grunted resentfully. "I have a notion to smear him up."

"That would be most unwise," Kepling said quickly. "In the first place, he has not harmed us, and in the second place, even if you should succeed in overpowering him with his strange drugs, we have not the remotest chance of getting back to earth."

"You mean that we are in space right now—off the earth?"

"Exactly."

"And this is a space-ship?"

"Nothing else but!" Jim grinned gleefully.

"But where did he have it when he was hanging around the Science Building?"

"Undoubtedly he had it stationed in the upper atmosphere, and he conveyed us to it in some mysterious manner."

"Suppose we ask him?"

"I have tried to communicate with him but my efforts have been unsuccessful. However, I believe I can enlighten you both on one point. My observations tend to the prophecy that we are speeding toward the constellation of Perseus or Andromeda at a terrific rate."

"Well that is the best news I have heard since the calculus questions were stolen," Jim grinned.

"But what about our earth?" I asked. "Is it still visible?"

"No, the earth dwindled away some time ago and now even our sun has shrunk to a star of the first magnitude."

"That ought to be an interesting sight," I said, starting to rise.

"Take it easy, Mr. Hunt, the sensation of weightlessness may not make you any too steady on your feet for awhile."

I AROSE awkwardly. Outside of being slightly dizzy, which I laid to the lack of gravity, I managed to follow the white-haired figure of Kepling without any mishaps, although my eyes were busily roving over the fantastic building which Jim later told that he had nicknamed "The Temple of the Stars." It was formed of a type of composition that at first glance resembled glass, but although it was transparent, yet it glowed with a silver luminosity, giving the effect of diffused moonlight.

As soon as Kepling reached the edge of this strange palace, and pointed back to a bright yellow star below us, the luminosity of the floor and walls, which I will continue to call glass for the want of a better name, faded out, and the stars glowed through the black abysses of space at us from all sides like millions of vari-colored lights. How aptly Jim had named the ship! I was so awe-struck at the gorgeous spectacle which they presented, that I failed to note the puzzled frown that had crept over the placid features of the white-haired scientist.

"Something is the matter with the sun—I mean our sun," he announced, his usually quiet voice vibrating with a note of alarm.

"I expected as much," I heard myself saying.

"What?"

"Well, I mean it's a hunch that came to me yesterday, or day before, or last week—or whenever it was that you gave your lecture on Nova Persei."

"Then why didn't you mention it in the office?"

"Forgot it, I suppose. So much was happening. Then, too, Jim had kidded me. He had suggested . . . oh, certain disagreeable possibilities."

But Kepling was no longer listening to me.

"Look!" he cried, his voice trembling with excitement.

My eyes turned unwillingly—almost fearfully back to that little yellow star. It was ablaze. Its dazzling glory seemed to expand—eclipsing the more feeble lights of its nearest neighbors.

Then again I felt that strange presence near me, and turning around, I saw the flower-like being floating near us in all its ghostly, silver beauty. One long, radiant tentacle slowly separated itself from the others and pointed to a great opaque globe which began to glow with a ruby light.

"Look, a new type of telescope, I suppose," I said as Kepling's horror-stricken eyes followed my pointing finger.

Slowly the ruby light began to shrink, turning to a glaring white as it concentrated in a spot of terrific brilliance.

"He is showing us the sun—our sun . . ." The old astronomer's voice ended in a groan.

Then suddenly I saw it—that wave of fire—spreading . . . on every side . . . spreading. Jim covered his eyes as if to shut out the horror of it. Beside me the flower-thing floated silently, his phosphorescence touching the scene with a detached, unearthly shimmer. Perhaps he lingered there with unexpressed and inexpressible sympathy!

The wave of flame spread on and succeeding waves followed it, until the glare of the flaming disc became unbearable. But the globe followed the first wave of fire, and slowly the gleaming nucleus drifted to the edge and out of sight.

Jim uncovered his eyes again and stared as a hypnotized man might stare at the globe.

Flashing in a trillion sparkles, the wave of white-hot gas was reaching for its first planet . . .

"Mercury!" Kepling gasped, even as the wave engulfed it and turned it into a tiny torch.

The light of the conflagration seemed to intensify as it spread, and again the globe followed its expanding edge. I felt my throat tighten as Venus swept into view. But almost immediately it was caught up in the veil of fire, seemed to actually explode in hissing steam and slowly swung toward the edge of the globe as the third planet accompanied by its tiny silver bubble of a moon came into the path of the fiery death.

Kepling groaned, while Jim stared like one turned to stone. In that moment of horror, as we watched in helpless misery the luminescent wave creeping upon our little world, I seemed to be able to see with my mind's eye the streets of the cities with their floods of terror-stricken faces turned skyward—some groping with blind stares from which sight had been forever blasted, and others glaring with pupils from which the light of reason had vanished . . .

But the wave of death swept on—engulfing the planet and causing it to gleam suddenly like a large diamond thrown into a strong light.

Kepling slumped limply to the floor. That movement startled Jim from his frozen state, and he bent over the old gentleman with white, drawn features. But I staggered back away from the globe, closing my hands over my face as if to shut out its terrible message. My foot struck a bench and on this I sank, dropping my head into my hands.

Infinite moments went by. Finally I felt a hand on my shoulder and heard Kepling's voice murmuring:

"I know, my boy, that it is easier to face the most horrible death oneself, than to realize that everything one has loved and lived for has been swept away in one moment of unspeakable terror, but the past is past while we are still alive and must go on."

"As wanderers of space."

"Yes, as wanderers of space," he nodded, gripping my shoulder harder with his slender fingers. "For without the need of words it has been revealed to us why we were kidnaped."

"Perhaps he too . . . he seemed sort of helplessly sympathetic when it happened," I murmured, noting that the globe had turned black and that the silver luminosity had come back into the floor and the walls.

"Perhaps," the white head nodded. "It is a cruel, unbelievable fact to face but we must realize that not only our friends, but also all art, all history and literature, all the sciences—everything which we call our civilization has been swept like a gnat into nothingness. For when we three die, our race will be no more."

"Don't!" Jim begged in a whisper, instinctively using the hushed tones that one falls into in the presence of death.

So it was that our great adventure was begun upon the ashes of tragedy, and this was why the bitterness of that tragedy never entirely forsook our minds. For though in the days which followed, we did much to regain our zest for life, yet behind it always loomed that terrible knowledge that the past was blotted out—making the future but a hopeless blank, even as those dark apertures torn in the star-clouds of the heavens are a blank, through which we seem to look into endless nothingness . . .

And now time slipped by, almost without the realization that it was passing. Kepling worked almost unceasingly upon copying what he could remember of scientific books, while Jim and I spent hours at the glass wall looking out at the stars which gleamed around us like endless swarms of fireflies.

We saw our host but seldom, although he seemed to anticipate our wishes in a most extraordinary manner, the objects we had desired always appearing to materialize from nowhere. He himself, however, kept out of sight —either preferring to stay invisible or else remaining in the upper part of the palace-ship which we had never seen. We often commented upon him, wondering where he had come from, where he was going and again, if he, too, was the victim of one of those catastrophes that astronomers had called novæ—an exile without a parent civilization—a wanderer through space.

This feeling was intensified, when passing near to Algol, he distracted our attention from the "Demon Sun" by pointing one gleaming tentacle to the nebulous rotating ring of Nova Persei, which was looming up like a strange Saturn among the stars, and then slowly fading away again into darkness. Jim was the first to voice his opinion.

"You were right, Doc. This man from space is certainly interested in Nova Persei."

Kepling nodded thoughtfully.

"Wanted: one Sherlock Holmes." I grinned.

"Well, I don't know why it should, but it gives me the creeps to think that he might have come from Nova Persei," Jim murmured with a shrug.

"And the way he has of fading away into nothingness gives me the creeps," I added.

"It is equally possible that our methods of locomotion give him the creeps," Kepling smiled. "Personally, I am of the opinion that his method has innumerable advantages."

Jim laughed.

"Especially in some of the exploring expeditions that we probably have in store for us!"

"Look!" Kepling interrupted. "The nebula around Nova Persei is pretty plain now because of our nearness—but the condensations—they are easily distinguished."

"You know, Doc," Jim said thoughtfully, "they do look like the remains of planets. Not that I'm upholding the theory that they were run down by a dark star, but merely overtaken by the wave of fire."

Kepling's eyes sparkled suddenly as the idea took hold of him.

"Possibly they are. I wish I could turn the globe back to our sun and observe what has happened," he said earnestly, the scientist of him fully aroused over the conception of a new theory.

He had no sooner uttered the wish than the globe clouded with showers of stars and comets, until at an immeasurably further distance than we had viewed it before, a flaming sun flashed upon the screen. Surrounding it was a very faint nebulous haze and dimly marked were four tiny condensations—somewhat brighter than the luminescent veil which surrounded them.

"Why only four?" I asked in surprise.

"We are evidently too far away to see the four minor planets and those are the major four."

"Good reasoning, Jim," Kepling smiled affectionately.

"But it does have an uncanny resemblance to Nova Persei," I put in.

"Except that the positions are about reversed," Jim added.

"Of course, there is no need of forming theories any more, but the habits of a life-time are hard to break." The white-haired figure smiled wistfully as I turned away from the globe. Somehow, the sight of that gloriously beautiful funeral pyre hurt me more than the lash of a whip. Disconsolately I turned away, walking toward the opposite wall and looking off through the myriad swarms of stars that glowed in through the darkened sides of the ship. Then suddenly I stopped and stared. For out of the tail of my eye I had caught sight of an enormous colored light ahead of us that loomed up like a vast comet. I looked up quickly. The new object, which seemed to have appeared from behind the hidden prow of our spaceship as if we had been steering toward it and now were swerving to one side, was a brilliant blue sun, the lower third of which was covered by its reddish-yellow companion. I had often viewed binary or double stars back in the old University telescope, so the sight was not unusual, but the nearness of this pair made me gasp at the splendor of the spectacle they presented.

"Come quickly!" I called out with excitement.

Jim was the first one to reach my side, but the white-haired astronomer was not far behind him.

"Look at the blue sun up there with its companion that looks like a huge luminous orange."

"Must be Almack," Kepling said thoughtfully.

"Almack?" I asked, trying to place the familiar name.

"Yes. You will remember that in my lecture on multiple suns, I mentioned this group of three."

"Three?" I said quizzically, taking another look at the apparent double.

"Yes, three. Behind the orange sun, you will see the thin green outline of the third. Like all multiple suns, you will remember that they revolve around their common center of gravity."

"Did you say the third sun was green?" I asked, trying to separate it from the red corona of the orange.

"Don't you remember our discussion on that very group?" Jim grinned at me. "You were trying to figure out the sunset effects."

"Sounds more like your ideas. You were the interplanetary bug of our group."

"Perhaps so. But oh how I would like to take a peek at a world lit by this trio of colored suns!"

"That is a wish that I have secretly nursed all of my life," Kepling admitted softly.

HARDLY had the words left his lips, than the three jewel-like suns swung back toward the prow, becoming eclipsed at last by the forepart of the ship.

"He is going to take us there," I laughed. "How's that for thought reading?"

"Well, the wish was double," Kepling smiled, "and therefore doubly strong."

"Triple," I corrected.

Jim laughed as the silver luminosity came back into the walls. It was the first real laugh I had heard from him since the days on earth.

"I am only hoping that our entertaining host has adequate means of breaking the speed of the ship," the old professor murmured with a worried frown.

"But if we really wanted to worry, Doc, we wouldn't have to go very far. A whole host of funny ideas would come trooping in," Jim grinned. "For instance, we might begin to wonder about the air and if its content would agree with our lungs; or we might wonder if the planet is too small and the atmospheric pressure would burst us, as the deep sea fish burst when they come into the air; or we might wonder if the planet is so large and the atmosphere so dense that we would be crushed . . . or . . ."

"That will do for the present," I put in.

"Besides, we haven't any weapons . . ." he continued.

"Young gentlemen, I for one have full confidence in the good judgment of our host."

"So have I. Even if I did start out wanting to kill him off."

"I tell you—he's a great animated flower," Jim agreed.

"But the most practical thing," I interrupted, "would be to get some sleep before we get too close, because we will be too interested in the landing of the ship to even think about such a thing later on, while we do not know what dangers or hardships may await us on the new world."

Both of my companions agreed on the wisdom of this suggestion, each throwing himself down on his particular tufted mattress-like rug. For a long time, however, sleep would not come to me. I lay awake wondering to what weird civilizations this man from the unknown was carrying us. To what destinations were we ultimately bound? What adventures waited us on the morrow? How long would we stay on this world with its colored suns—and after that—what?

The first thing that I noticed after I had awakened, was the glow of the colored suns upon the silver luminosity of the walls. A green light blended into lavender and then purple was followed by orange in unending splendor.

I sat up and drank in the cubistic beauty of the crystal palace under these changing rays. When I stirred, Jim immediately sat up and called out:

"How are these for stage effects? If I could transport them to Broadway, we'd both be rich."

But my laugh that followed this apparently thoughtless remark died in my throat.

"Come now. I'm sorry. No gloomy thoughts today."

I nodded with a smile, walking over toward the walls. As usual, this movement on our part was the signal for the luminosity to die out, but this time the light which shone through from the colored suns was even more intense than the silver which up to now had seemed to act as a screen.

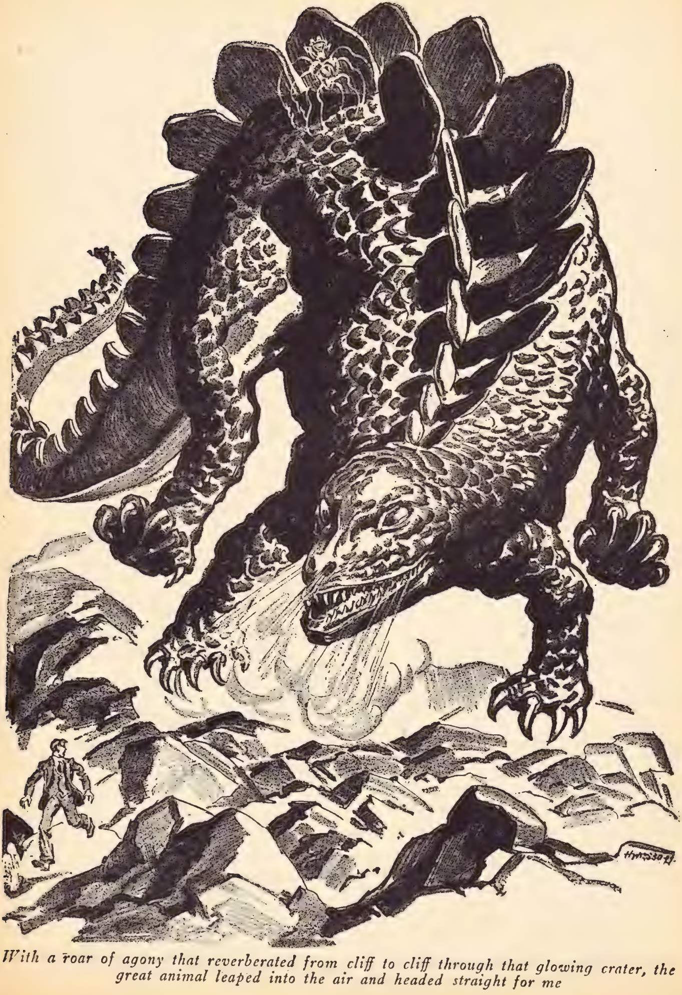
Suddenly Kepling's voice sounded softly behind us.

"Look toward the prow of the ship."

We turned our faces upward almost simultaneously, and gasped to see the disc of a planet swinging between us and the star-spangled blackness of space. It was tinted green and orange—one side of a mountain chain being of a greenish hue and the other a reddish orange.

"What about the pressure?" Jim asked anxiously.

The cultured voice droned a low reply that might have been the part of a class-room lecture.



With a roar of agony that reverberated from cliff to cliff through that glowing crater, the great animal leaped into the air and headed straight for me

"The size of the body is close to that of our own earth and so the pressure is about right, while it is far enough from its suns to give a very pleasant temperature."

"What did I say about our ghost-like friend?"

"Was it you that said it?" I teased Jim. We hadn't completely overcome our earthly habit of annoying each other's peace of mind, even with the ever-present example of gentle manners we had in the old professor.

"I didn't believe that our host would knowingly lead us into danger," Kepling put in innocently. "Concerning the contents of the atmosphere, however, we can only take a chance."

"I am only waiting for the opportunity to take it," Jim grinned.

"Don't be so sure about the chance," I nodded. "It looks very much as if our engineer has decided to give the planet the go-by."

Indeed, the disc was rapidly swinging toward our stern. Kepling watched for a few moments in silence and then smiled.

"He is turning the ship around. In other words, he is going to lower us stern first upon the planet."

"But what is the idea, Doc?"

"He probably has noted our interest and intends to allow us unobstructed observation."

After a moment it was quite plain that this was indeed just what was happening. As the great globe rushed up toward us, lit by its sinking green and rising orange sun, we kneeled down and finally threw ourselves prone upon the floor as the mountain chains took more definite form. Kepling was the first to point out the vast moon-like craters that dotted the face of the planet, and lifted jagged crags skyward from the level of what appeared to be a dead plain.

"Evidently very little water," the astronomer commented tersely.

"The seas do appear to be dried up—very much like the state on the moon," Jim agreed.

The green sun had dropped from sight when at last we decided that the light patches on the mountain tops were snow. It was an orange world that we now rapidly lowered ourselves upon, hovering sometimes and again seeming to waver along sideways as if seeking a particular spot which the engineer had admired during a previous visit. Jim was the first one to suggest this possibility, and once the idea was planted, it grew upon us.

We finally passed a part of the wildly mountainous country which began to be lit by the blue sun on one side and the orange on the other. At this point the ship ceased to waver and began to drop rapidly toward the mountains, landing with a scarcely perceptible jar on a level plateau that was just opposite a tremendous talon-like range of peaks. The little plateau upon which we found ourselves seemed to be itself the peak of a mountain, though not as high as the chain opposite—nor could we look down the other side, for another glance showed us that our resting place was not quite the top, but a small ridge had to be climbed first. For a moment now, we rested in shadow, but it was a weird twilight, the greenish tint lingering in the heavens only as a kind of afterglow, giving the effect of strangeness which I have sometimes noted on earth, after a wild storm has momentarily torn a cleft in the clouds for the zodiacal light to peer through.

Then as we stood there by the glass walls, our spectre-like host floated down toward us from the shimmering upper drapes, and pointing with one of his lustrous tentacles, he called our attention to an open doorway, through which a cool breeze sprang into the ship.

JIM was the first one through, landing in the moss-like growth of the plateau with one long jump. I followed. Bounding along like a puppy that has been held in confinement, he ran with long leaps and jumps toward the edge of the cliff where he stopped and waved like a maniac. I caught up with him with such a leap that I almost went over the cliff, while the white-haired figure of the scientist followed with more dignity. But when I looked down into the valley, the unearthly character of this moon-scape left me gasping.

Imagine, if you can, a range of huge silt mountains from which ever-tumbling veils of snow and rock dropped intermittently into a gorge four times deeper than the Grand Canyon, with a dull roar. It seemed as I stood there that I was gazing upon a staircase for giants leading down to a bottomless pit of half-fluid mud, and then over it all that weirdly-changing sky and finally the first gleams of the blue sun, as it climbed through a knife-slashed pass.

I was still looking in awe-struck silence when Kepling's voice murmured:

"I believe that the scene on the other side just over the ridge, is perhaps equally interesting."

"How can it be?" Jim gasped.

"Such is the judgment of our host at any rate. He pointed up that way but you two rushed off too vigorously to even notice his instructions."

"Well, we can go up there; but Doc, just look at that pit."

"The region is evidently still volcanic," Kepling mused, picking up a rock.

"Some push certainly heaved up those mountains. But look at that swamp," Jim persisted.

Kepling nodded thoughtfully.

"I bet it's full of funny-looking monsters," I laughed.

"Not so funny close up," Jim interrupted. "But let's take that look at the other side. Personally, I feel like getting some exercise. The only trouble with space-travel is that there are so few stop-overs and those are so far apart!"

So with Jim leading the way, we climbed up the rocks leading toward the ridge. Once over the top, however, our leader did a war dance to convince us of his approval of the view, while I turned and smiled at Kepling. The old scientist waved away my offer of assistance, and I, too, leaped over the intervening rocks, where I stopped and slumped down with awe-struck eyes. For yawning below us was the cavernous depths of a vast crater where a molten lake boiled and bubbled—the living lava splashing up with livid spurts of hellish splendor in the glowing pit—miles below us. Across from us the opposite walls of the crater were outlined blackly against a carmine sky, the sinking rays of the setting orange sun giving the appearance of a huge conflagration raging down the unseen slopes of the other side, which, having swept through the crater, had left this lake of glowing embers behind.

Overhead the sky was turning a reddish-purple, while over to one side a huge purplish moon, half ruby and half blue, was rising.

Kepling stopped for a moment on top and then stepped over to the very edge and looked down. I was just admiring the old scientist's nice sense of balance when I heard him give a sharp cry, saw him throw his body around as if to catch himself, and then go plunging down through the darkness toward that glowing pit. I started to my feet in horror when a sudden convulsion of the rocks made me look down. Imagine my terror to realize that what we had mistaken for a ridge of rocks in our delight at the scene before us was a sleeping dragon—a huge armored creature which had been taking a nap on the crater's rim. Kepling had been standing on the thing's back, and therefore had been the first to fall as it moved. So perfectly matched to the rocks had been his protective coloring that we had not noticed him!

I leapt to his tail, intending to then jump to some lava projections and try to get a glimpse of the old professor, before the monster turned on me, but I was too slow. He swished his tail, hurling me unceremoniously into space whence I dashed helplessly against some rocks and started to slide down the cliffs toward that red, bubbling horror. Miraculously, I don't know how, I kept my senses, digging my heels and fingers into the earth to stop me and clutching what plants I could grasp. At last I caught a gnarled plant growing at the very edge of the long drop into the cauldron. There I swung between the lava cliff and the burning lake, with only one toe-hold with which to climb back.

When at last, shivering and perspiring, I finally pulled myself up and lay limply on the black rock, a wail and a roar sent my eyes back to the monster.

Something was being pulverized into nothingness under the maddened stamps of the great beast whose gleaming red eyes did not note that a new menace flew through the air at him, until it was too late, and a silvery-gleaming, flower-like creature with shimmering tentacles lit upon his back like a giant insect of some terrible, malignant type. With a roar of agony that reverberated from cliff to cliff through that glowing crater, the great animal leaped into the air and headed straight for me—maddened into frenzy by the stinging thing which he could not shake off. Each leap shook the whole mountain as those tons of animal flesh crashed to earth.

Then, suddenly, with a more ominous roar, I felt the whole cliff tremble, and leaped back just as the entire face of the mountain gave way, carrying with its rush of rocks like a struggling ant, the brown dragon and the silver thing that still clung to its quivering flanks like a phosphorescent flower . . .

FOR a moment I was too much concerned with racing the breaking rocks on the top of the slide to catch more than a glance of the dragon that rolled under the thunder of the avalanche, but after the dust had at last cleared away from the freshly-glowing lava lake, I sat down on the tip of the rim and stared with unseeing eyes into the cauldron.

Behind me, with its glass walls glittering in the rising rays of the blue sun the palace ship which Jim had nicknamed "The Temple of the Stars" stood peacefully, waiting for the gleaming master, which would never return. Before me, the ruby color of the cauldron changed subtly through all the shades of lavender to purple as the blue sun climbed higher and the orange sun deepened its glow to the red of a deep garnet. Before me, a few loosened rocks still bounded hollowly down the cliffs . . .

Of my companions who had accompanied me over the rim in such high spirits, not a shred remained to tell that they had ever lived. Indeed, seated here upon a giant crater—like a gnat that surveys a mountain gorge—to what end had I struggled so madly to preserve my life, doomed as I was to die on this wild, weird world—or in case I did learn the secret of the ship's propulsion and fuel—then to wander through space forever alone—the last living creature of my kind?

* * * *

"BOB HUNT! Will you wake up, or shall I have to carry you out of here?" I heard Jim's voice asking impatiently.

I opened my eyes suddenly, looking in consternation from the streak of yellow sunshine that was lazily streaming over the classroom floor, back to the very amused eyes of Dr. Kepling.

"But I thought . . ."

"Never mind what you thought! Come on and get moving!"

"But Jim! We're still on earth! And our sun . . . why it's all right! It's normal—isn't it?"

A deep horse-laugh greeted this statement from the vicinity of the doorway where a number of amused students were lingering.

"Make a fool of yourself if you wish—but count me out!" Jim snapped starting toward the door.

I picked up my books sheepishly and followed him, apparently deaf to a number of wise-cracks that were hurled at me. Only when we were nearing the house did he deign to notice me.

"You picked out one of the most interesting lectures of the year to sleep on, you poor nut."

"I know—it was about Nova Persei."

"Oh, you did hear some of it, did you?"

"Of course I did." Then after a moment, "You know, Jim I have a funny hunch that those condensations were the remains of planets which were consumed by the wave of fire which the main sun threw off when it exploded."

"Sleep all through a lecture and then presume to know something about it, eh? Well, Mr. Would-be Scientist, get this—the collision theories fit the facts of Nova Persei better than the explosion theory."

After that I subsided. Only in front of the house, I laid a hand on his arm.

"Are you still too peeved to play our usual set of tennis this afternoon?"

"Sorry, old sleepy-head, but I have that calculus quiz coming off this afternoon."

"Oh, the questions—no one stole them?"

"Well, aren't you just brimming over with the most amazing ideas! Who would be fool enough to steal the calculus questions?" Then with a laugh—"Say, boy, I only wish that I could answer that dumb question in the affirmative—but there is *no such luck.*"

[AUTHOR'S NOTE: I realize that there are inconsistencies in this dream of Bob Turner's, but who has ever heard of an entirely consistent dream?]

THE END

"AMAZING STORIES QUARTERLY" will be on the newsstands January 20th

The Explorers of Callisto

By Harl Vincent

(*Continued from page* 1011)

our linguists who can, in turn, collaborate with the experts of our Secret Service in solving the code. We will thus be in a position to learn of the plans of the enemy in advance."

"Good idea. This is going to be a whole lot of fun—for me at least. And I am sure it will be for you as well."

"It certainly will be. I am looking forward with much interest to the possible deciphering of the enemy messages. But it seems to me the biggest job of all will be to convince our world of the danger that threatens and to obtain official action before it is too late. Think of the calamity that hangs over the heads of our people! Less than a dozen of those huge spheres could lay waste half of our own United States in a very few days if they struck in our present defenseless condition. I am much concerned over the outlook, having had some experience in getting governmental recognition and action on important matters."

Ray laughed. "I know how you feel, old man," he said. "I have had one or two such experiences myself. But in this case I think there will not be much trouble. The messages—the photographs—the captured weapons of the Callistonians—all are very definite proof of our story. Then we have Lola to present in person."

Gary looked over his shoulder and saw that Lola and Eddie were bent over the pad, on which the girl was again sketching. Ray's eyes followed his friend's glance and a broad grin spread over his features.

"I should have said that Eddie has her to present," he remarked.

The two scientists gazed benignantly at the lovers, whose heads were drawn so close and who seemed so entirely oblivious of their presence in the vessel.

The "Meteor" rushed onward toward the world which was to be rudely awakened to the necessity of arming against a foe from out of space. Unheeding, Lola and Eddie strove desperately to tell each other what was in their minds. The girl, flushed with happiness, suddenly threw her arms about the neck of the man at her side and Ray and Gary turned to stare intently into the screen of the periscope. Each was convulsed with pleased merriment, but they made not a sound.

Eddie found that he could make himself much better understood by the use of caresses than he had been able to do with the sketch pad.

THE END

A Twentieth-Century Homunculus

By David H. Keller, M. D.

(*Continued from page* 1019)

"So you really are glad?" she said.

"I certainly am. I consider it a triumph for Dr. Jones and that grand old man Paracelsus, and of course I deserve some praise as I supplied the money and the inspiration."

"Don't you think I deserve some credit?" asked the wife.

"Why Ruth! What do you mean?"

"Silly!!" she cried.

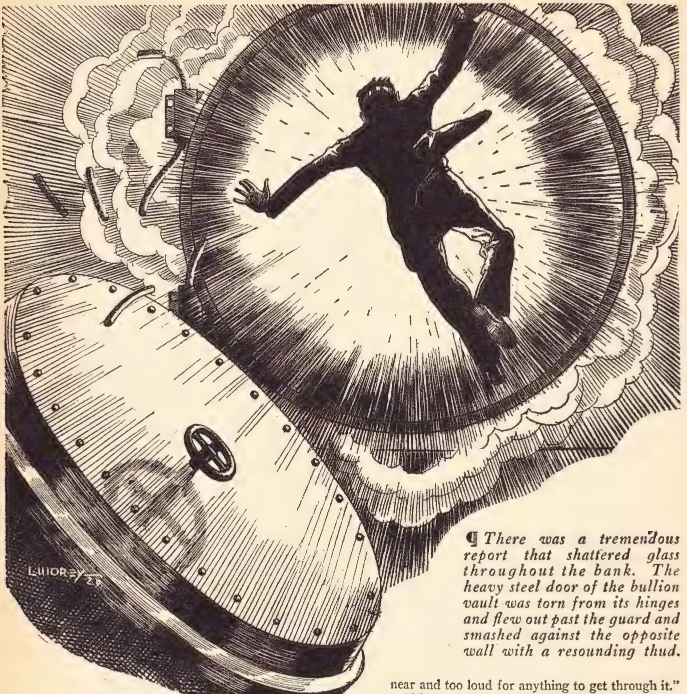
* * * * * * * *

In the course of time the colonists landed in San Francisco and the three Reiswicks started at once for New York. As soon as they arrived there John Reiswick went to see Dr. Stanfield. That man gave him no time to say a word.

"I am certainly glad to see you. I want to tell you the news, but no one seemed to know where you were or at least were not willing to tell if they knew. Right after you left, we investigated the case of that shipping clerk and his baby and we were impressed with the fact they were eating an entirely different variety of food than the average American family was eating. We had suspected that this wave of sterility might be caused by a vitamin deficiency and so we worked their diet out from this viewpoint. We isolated an abundance of a vitamin which we will call No. 6 and we found that we could produce it very cheaply. We experimented on several thousand cases and the results were fine. The information was spread by the Government and we see now that there is no need to worry. So it would have been all right for you to have gone ahead and marry. Did you go somewheres with Hermopheles Jones? The last I heard was a rumor that you and he were going to duplicate the experiments of Paracelsus. Did you do it? Did you produce a baby?"

"You bet we did," replied John Reiswick, with a grin.

THE END



¶ There was a tremendous report that shattered glass throughout the bank. The heavy steel door of the bullion vault was torn from its hinges and flew out past the guard and smashed against the opposite wall with a resounding thud.

"DID you have any trouble with your radio last night, Charley?"

The bullion teller swung around to face his assistant.

"Nothing else but," he replied. "There was some kind of a tearing, roaring noise that started about seven-thirty and kept up all night, or at least until I turned in at midnight."

"I had the same trouble," Glenn Hunter replied with interest. "It seemed to center at about 450 meters, but it took in a wide band on each side and just drowned out everything. It sounded like an old type spark-gap transmitter going full blast, except that it was a steady hum instead of dots and dashes."

"That's what it sounded like all right. I hadn't thought of that, but it did have the same characteristics. I tried to tune it out by turning my loop, but I couldn't do it. The loop helped some, but the source was too near and too loud for anything to get through it."

"Moulton's set has an aerial, so I couldn't try loop tuning, but there was no use in trying to cut it out with condensers. It was such a wide band that it covered the whole dial. What do you suppose it was?"

Charley Barnett never got a chance to expound his theory, for the conversation was interrupted by a messenger who handed Hunter a telegram. He took it and tore it open.

"Listen to this," he remarked in disgust. " 'Six hundred pounds gold bullion nine hundred fine consigned Federal Reserve Bank Philadelphia due West Philadelphia station nine-twenty A. M. tenth. Be ready to receive. American Railway Express.' It wasn't enough for them to shove in two thousand pounds yesterday after quitting time, they have to start before we open in the morning. Oh, well, I suppose we've got to get ready for it. Go open the bullion vault for me and see where we can put it, will you, Charley? Have that last lot of bars moved, if necessary. I want to run through these assay reports before the stuff gets here."

The Radio Robbery

By
Captain S. P. Meek
U. S. A.

Author of "The Murgatroyd Experiment," "Futility," etc.

Illustrated by
MOREY

IT has long been a dream of metallurgists to conquer the science of transmutation of metals. Also it is a pet theme for writers of scientific fiction. We are well on the road to synthetic foods, why not synthetic metals? This time Capt. Meek has devised a truly ingenious method for obtaining synthetic gold, which gives the radio yet another use. The author cleverly blends science and fiction so it is hard to tell one from the other. This is an exceedingly plausible story of unusual merit.

Barnett took Hunter's keys and set off for the vault, whistling gaily. He nodded to the watchman on duty, entered the main vault, unlocked the door of the inner bullion vault and stepped inside. The vault was dark and he felt for the light switch and turned it. The switch clicked, but no light rewarded his efforts and he reached in his pocket for his flashlight. To his disgust, he found that he had left it in his desk, but his searching hand encountered a box of matches. He drew them out and struck one.

There was a tremendous report that shattered glass throughout the bank. The heavy steel door of the bullion vault was torn from its hinges and flew out past the guard and smashed against the opposite wall. The light-bulbs in the vault were broken by the force of the explosion and the guard was knocked unconscious. The alarm gongs throughout the bank set up a deafening clanging, and the guards rushed to their stations with drawn revolvers.

In the absence of higher officials, the cashier took charge of the situation, and under his direction a body of guards approached the vault with drawn weapons while the electrician followed them with spare bulbs. They entered the vault unresisted and new bulbs were soon lighting up the scene. The mangled body of Barnett was found beside the door of the bullion vault, badly crushed by the force with which it had been driven out. The bullion vault was apparently not injured, and so far as could be told by a hurried inventory, made by Hunter, nothing was missing.

"Of course it will take me at least an hour to make a complete inventory," he said to the cashier, "but at least the major items seem to be here intact. I'll start at once."

"Do so," replied the cashier as he hurried out to greet the police who were responding to the riot call automatically turned in by the gongs of the bank.

Hunter was busy at the inventory when the police entered.

"Have you found anything missing, Mr. Hunter?" asked the cashier.

"Not so far," he replied. "I want a couple of men to move these bars so that I can count them."

"Surely," answered the cashier. "I'll have them sent in at once. What shipment is this?"

"It's a little over two thousand pounds of nine hundred and ninety fine that came in from the west last night," replied Hunter. "It's the purest stuff we have had here for some time. It's soft as butter. Just feel it."

The cashier stepped over to the pile of bars and rubbed his nail against one. In surprise, he stooped and looked at the bars closely and then drew out his pocket knife. With the blade he dug at one of the bars for a moment and then straightened up with a strained expression on his face.

"What did you say these bars were, Mr. Hunter?" he asked.

"Nine-ninety fine bullion," answered Hunter. "Why?"

The cashier stooped and scraped again at the bars.

"Did you receive these yourself, Mr. Hunter?"

"Yes. Mr. Barnett and I checked them in after closing time because the Express Company didn't want to hold over six hundred thousand dollars worth of bullion over night if they could help it."

"Mr. Hunter," said the cashier with a drawn face as he stood up, "these bars are copper."

"Copper?" exclaimed Hunter, disbelief in his voice.

THE cashier pointed silently at the pile. Hunter stepped over and looked at them. He had been handling bullion for several years and it took only a glance to assure him that the cashier was right. The bars which he had checked in the night before as gold worth twenty dollars an ounce were copper worth less than that many cents a pound. He straightened up, dumbfounded at the discovery.

"Can you explain this, Mr. Hunter?" asked the cashier.

"I certainly can't," replied Hunter. "Barnett and I took them in and they were gold, or at least they looked enough like it to fool both of us."

The cashier looked incredulous. A detective sergeant from the Chestnut Street station stepped forward.

"So it's robbery as well as murder," he remarked.

"Murder!" exclaimed the cashier.

"Of course it's murder," replied the sergeant. "Hunter, I guess you had better come with us. Jenkins, put the bracelets on him. It looks to me like an open and shut case."

"Wait a moment, Sergeant," exclaimed the cashier. "Mr. Hunter is one of our most trusted employees. You had better be sure before you do anything like that."

"Sure!" snorted the sergeant. "Why, it's as clear as the nose on your face. There are a few details that are hazy in my mind yet, but a little questioning at headquarters will soon clear them up."

"But you haven't any evidence, Sergeant," protested the cashier.

"How much evidence do you need?" asked the sergeant scornfully. "It's as clear to me what happened as if I had been here at the time. Who left here last yesterday? You might as well tell the truth; the watchman on duty will know."

"I left last," replied Hunter. "After we got the stuff weighed and checked in, I let Barnett go. I stayed a few minutes and calculated the assay values. I must have left about thirty minutes after he did."

"Half an hour just gave you a nice time to fix that bomb, didn't it?" said the sergeant.

"Bomb! What are you talking about?" asked Hunter slowly.

"Oh, not a bomb, just a firecracker," replied the sergeant with heavy sarcasm. "It was just a harmless little joke on your assistant, wasn't it? I suppose he begged you to allow him to open the vault this morning, didn't he?"

"No, I asked him to do it," answered Hunter.

"Did you all hear that?" asked the sergeant triumphantly. "He admits that he sent the dead man to open the vault this morning after he had spent half an hour alone in it last night fixing up a bomb that would explode when the door was opened this morning."

"I didn't say anything of the sort," replied Hunter hotly. "What I said was——"

"Tell it to the District Attorney," replied the sergeant jeeringly. "I've got the goods on you all right."

"Sergeant, your idea is preposterous," exclaimed the cashier. "Why on earth should Mr. Hunter wish to hurt Charley Barnett?"

"What's her name?" said the sergeant suddenly to Hunter.

"Whose name?" countered Hunter.

"The skirt that you and Barnett were both chasing."

Hunter colored slightly.

"I don't think her name needs to enter into it," he replied.

The sergeant turned triumphantly to the cashier.

"There's your motive," he exulted. "Jealousy is the reason back of lots of things of this sort. Even without that, half a million is enough to make most men commit murder."

"Half a million?" asked the cashier wonderingly, "I don't quite follow your line of thought."

The sergeant looked disgusted.

"It's as clear as mud," he snorted. "This guy and his partner, Barnett, framed it up to have this copper shipped here billed as gold. They timed it so that it arrived after quitting time and checked it in themselves and receipted for it. That means that the bank is held for that much gold. They probably figured out that it wouldn't be discovered for a month or so, and then they wouldn't know anything about it. Then this bird can't see why he should split the pile any more than he has to, so he sends Barnett away and spends half an hour fixing up a bomb that will bust his buddy all to pieces in the morning. That gives him the whole smear and gets rid of his rival too. We'll go down to the D. A.'s office and sweat him a little and get the name of the jane and rake her in. The chances are that she knows all about it and that she'll spill the beans as soon as she finds that he's in hock. If she doesn't come clean right away, a little sweating will get it out of her."

"There is no need to sweat Mr. Hunter, as you call it, to find out the name of the girl whom he and Mr. Barnett were interested in," replied the cashier stiffly. "She happens to be my daughter."

The sergeant look chagrined.

"Well, maybe I am mistaken about her," he admitted grudgingly. "She may not be in on it, but that is no reason why he shouldn't bump his partner off so as to get a chance to grab both the swag and the skirt."

"I think that you are jumping at conclusions too hastily, Sergeant," said the cashier. "Mr. Hunter has been with us for a number of years and he is held in high esteem by the officers. I am sure that Mr. Fleckner, the president, will never consent to his being arrested in any such summary fashion on so little evidence."

"I don't guess that he'll get much chance to consent," replied the sergeant with a grin. "Jenkins, put those bracelets on him and take him away. Three of you men go along; he might have some pals that would try a rescue stunt."

Hunter started to protest but the cashier silenced him.

"Better go with them quietly, Glenn," he advised. "They have the right to take you and we can't stop them. As soon as Mr. Fleckner gets here I'll tell him the whole thing and he'll have you out in a few minutes. I know very well that the whole accusation is silly, but there is no use arguing."

DESPITE the cashier's representations, the president refused to take hasty action and Hunter was still in jail when a group met in the president's office to consult about the situation. Mr. Fleckner, a gray-haired man with a stubborn jaw and a steely glitter in his eyes that bodes little good to transgressors, sat at the head of the table. Seated around the table were the Chief of Detectives from the City Hall, the sergeant who had arrested Hunter, the District Attorney, the cashier and a quietly dressed little man who so far had said little and listened much. His inconspicuousness in dress and manner would have enabled him to pass unnoticed in a crowd, yet it was evident that when he spoke, the president listened with respect and close attention.

"Sergeant," said the quiet man suddenly, "please tell your story again and tell it carefully. Be especially careful in describing Mr. Hunter's words and actions. Try to lay aside your vanity and prejudice for a moment so that we can get an idea of what really happened."

The sergeant turned red and looked to his chief as if for protection. The Chief of Detectives looked sour and turned to the speaker.

"Before this bullying goes any farther, Mr. Carnes," he said, "I want to know one thing. Are you in charge of this case, and if so, by what authority?"

"I am in charge of one phase of it," replied the little man quietly. "As far as your suspected murder goes, that is a State matter and I have nothing to say about it. As far as the robbery of the Federal Reserve Bank of Philadelphia goes, I am in charge by the authority of the United States of America. Mr. Fleckner told you that I was sent here from the Treasury Department in Washington: it may interest you to know that I am Chief of the Federal Secret Service for this district. Here are my credentials if you care to examine them."

The Chief of Detectives glanced at the credentials offered to him, and then turned to the sergeant.

"Go ahead and tell your story, Halloran," he grunted. "Tell it straight too. This man is the real goods."

Sergeant Halloran retold his story, dwelling at length on Hunter's supposed confession about the bomb.

"That will do," said Carnes suddenly. He sat for a moment in thought and then turned to the Chief of Detectives.

"What has your Office done about tracing the gold shipment?" he asked.

The Chief consulted a memorandum which he drew from his pocket.

"The shipment looks all right," he admitted. "It was shipped from the Golconda mine, exactly the same as other shipments have been. The Golconda production of gold has been normal. They have been shipping at about the same rate for several years and they have no surplus of gold on hand. The stuff was assayed while it was held in the express company's office at the point of shipment, and it was never out of sight of an armed messenger from the time it left until it reached here. The express agent is ready to swear that he delivered gold here and that both Mr. Hunter and Mr. Barnett verified the weights in his presence. There were three guards used to bring it in and they are all old men here. They all agree that it was gold. They know the difference between gold and copper too, for we tested them."

"Did anyone leave the building after Hunter and Barnett last night?" asked Carnes.

"No one," replied the president. "I have the complete records of the door guard here. After the express people left, there was an eleven-minute interval before Mr. Barnett left. Thirty-seven minutes later Mr. Hunter left. He was the last one out."

"Has that vault been disturbed?" asked Carnes.

"No, it has not," replied the president. "As soon as Mr. Hunter was taken away, Mr. Moulton had the door propped in place and posted guards to see that no one entered. When I got here I confirmed his orders and had the vault left undisturbed for your examination."

"Let's look at it," remarked Carnes.

At the vault, he took merely a cursory glance around, touched the pile of copper bars negligently and then turned to Sergeant Halloran.

"Your theory is that Mr. Hunter arranged a bomb that exploded shortly after the vault was opened in the morning, isn't it?" he asked.

"Yes, sir," replied Halloran eagerly. "As far as I——"

"Answer my questions please and don't volunteer opinions," snapped Carnes. "You have done enough damage already. When you entered the vault did you smell any peculiar odor?"

"No, I didn't," replied Halloran shortly.

"Did you, Mr. Moulton?" asked Carnes turning to the cashier.

"I noticed no odor at all," replied the cashier.

"How soon after the explosion did you get here?"

"Within a minute or two."

"I thought so," remarked Carnes meditatively. "Sergeant Halloran, did you ever arrive at a place where a bomb had gone off within half an hour after it had happened?"

"Yes, several times."

"And when you did, did you ever notice an acrid odor of burned powder?"

"Yes, every time," admitted Halloran.

"And you noticed nothing of the sort here? Don't let your imagination run away with you. Did you?"

"No, sir, I did not."

"Neither did Mr. Moulton and yet he arrived at a time when the air should have been thick with smoke and the odor of burned explosive very noticeable. Strange, isn't it?"

"What has that to do with it?" interrupted the Chief of Detectives. "It is quite probable that they didn't notice it in the excitement."

"Possible, but not probable," replied Carnes. "Did you ever examine the scene of a bomb explosion?"

"Dozens of times," replied the chief.

"The local damage done at the point where the bomb lay was always quite extensive, wasn't it?"

"Certainly."

"Ah, yes," replied Carnes with a far-away look in his eyes. "Also fragments of the container can usually be found embedded in the walls. I don't seem to observe any here. Perhaps you will point out to me just where the bomb lay that exploded this morning."

The detective was silenced.

"I fancy that we are through with Sergeant Halloran for the present," remarked Carnes. "If the rest of you gentlemen will join me in Mr. Fleckner's office, we can discuss the matter further."

"Are you of the opinion that there was no bomb, Mr. Carnes?" asked the District Attorney when the conference reassembled, minus Sergeant Halloran.

"It was not a bomb," replied Carnes positively.

"What in Heaven's name caused the explosion then?" asked the president.

"I don't know," said Carnes thoughtfully. "In fact there are several puzzling features about the case. I am sure that it was not a bomb or any usual explosive that did the damage. It acted like a gas explosion, but there are no gas mains in the building and to introduce enough gas to cause an explosion of that magnitude into the vault by any means other than a pipe would require several heavy bulky cylinders that could not be hidden, and no such things have entered or left the building. Further, I can see no object in causing an explosion."

"Sergeant Halloran's theory is——" said the Chief of Detectives.

"We can eliminate that," interrupted Carnes. "I am sure that gold was delivered here last night. A shipment of copper might have fooled one man, but unless two express messengers and three bank guards were in on it as well as Hunter, Barnett and the express agent, it wouldn't be possible. I believe that the gold was delivered and stolen from the vault last night after Hunter left. I am inclined to think that Hunter knows no more about it than we do."

"All the same we'll hold him for a while," replied the District Attorney.

"Suit yourself," said Carnes with a shrug. "If I were you, I'd turn him loose and if I suspected him, I'd have him shadowed. However, that's your business and I don't want to butt in."

The District Attorney smiled.

"Now, Chief," Carnes went on, addressing him, "the Secret Service can cover the matter of that shipment and the express messengers more thoroughly than your men can. If you really want to cooperate, put your best men on the task of running down the past history of every guard who was on duty here last night."

"I'll be glad to," replied the Chief of Detectives as he and the District Attorney rose to leave. "The entire resources of my Office are at your service."

"Thank you," replied Carnes as he bowed slightly.

"Mr. Moulton," he went on as the remaining three reseated themselves, "Sergeant Halloran indicated in the course of his remarks that both Hunter and Barnett were interested in your daughter. How much of that may be true and how much may be his imagination, you know better than I. However, just as a matter of form, I would like to have a talk with her."

"As far as her knowing anything about the robbery is concerned, of course there is no truth in it," replied the cashier shortly. "As far as the interest of the two men in her goes, she can tell you how far it had gone better than I can. If you care to interview her, I will call her."

"There is no need for that," said Carnes. "I will be glad to go to your home and talk to her there."

"She is in the building," replied the cashier. "She has been here for some time waiting for a chance to intercede for Glenn Hunter. I can call her in a moment."

Carnes nodded assent and the cashier went out, returning in a few minutes with a strikingly handsome girl. She was about nineteen, of a slim and graceful build that just escaped being too slender. Her firmly modeled chin gave the lie to her dreamy eyes, but Carnes, as he glanced at her, shrewdly surmised that the recent tears which it was evident that she had shed might account for some of the mistiness that marked them. He sprang to his feet as she entered and bowed deeply in acknowledgment of her father's introduction.

"Sit down, Miss Moulton, please," he exclaimed holding a chair for her. His voice sounded all politeness and concern, and Fleckner smiled to himself as he saw that Carnes had placed her chair so that she sat facing the light, while his own face was in shadow.

SHE seated herself as he requested and with folded hands awaited his questions. Carnes seemed at a loss as to how to begin.

"Miss Moulton," he said hesitatingly, "it seems that one of your friends, Mr. Hunter, has been arrested by the local police as a suspect in connection with the death of Mr. Barnett. Some of the city detectives seem to think that jealousy may have been a contributing factor in the affair. In order to clear up the situation, would you mind telling me what you know about both of these men?"

"Glenn had no reason for jealousy and he knew it," replied Alice Moulton in a calm monotone that hinted at inward agitation. "Both he and Charley Barnett have been quite regular visitors at my father's house for nearly a year, and about two months ago both of them proposed to me. I refused to give an answer to either of them at the time and told them that I would decide later. Last night I accepted Glenn and, while he was present, I telephoned Charley and told him my decision. He apparently took it quite calmly, and when he learned that Glenn was there, he asked to talk to him and congratulated him very nicely. Despite their rivalry, they have always been the best of friends. So you can see that the idea of jealousy is absurd."

"Mr. Hunter was at your house last night?"

"Yes, he was. He came in after supper, about eight I should say, and stayed until after eleven."

"What were you doing?" asked Carnes. "I beg your pardon," he went on hastily. "You need not answer that question. It is quite evident what a newly engaged couple would do under the circumstances."

The ghost of a smile hovered for an instant on Alice Moulton's lips.

"We weren't doing what you might suspect," she said. "I have no objections to answering. In point of fact, we were trying to play the radio."

"Trying to?"

"Yes, but we couldn't get anything. There was a peculiar buzzing noise that drowned out every station, and neither Glenn nor I could tune it out. It started about seven-thirty, before he came in, and it was still going when he left. Of course, we weren't working with the radio *all* the time, but we turned it on at least a dozen times and tried to get something, but we never succeeded."

"Do you know anything about Mr. Hunter's circumstances?" asked Carnes.

"Naturally, I do," she replied. "He inherited quite a little money from his father and he has added to it by wise investments. At the present time he has an income aside from his salary of nearly four thousand dollars a year."

"Of course you believe him innocent of this whole business?"

"Of course," she said hotly. "The idea of his guilt is ridiculous. Why on earth should he do a thing like that? He had no cause for jealousy of Charley as I have told you. As far as robbery goes, he has a good income as it is, and he knows very well that I would never consent to share any stolen money with him. I know that he's innocent and I came down here to see Daddy and Mr. Fleckner and see if they couldn't get him out of jail. Won't you help me? Surely you don't believe him guilty?"

"No, I don't," replied Carnes. "I'd release him at once if it were in my power, but unfortunately it isn't. Don't cry, my dear," he went on hastily as Alice Moulton's lips began to quiver, "just keep a stiff upper lip and I think that we'll have him out of jail soon."

"Do you really think so?" she exclaimed gratefully. "Oh, Mr. Carnes, I'll love you forever if you do."

"That's plenty of inducement to make me do my best," he answered gallantly. "Now the best thing that you can do is to go home with your father and lie down and try to get a little rest. You can't do any good here. Mr. Moulton, you take her home. I'll place her under arrest and appoint you a deputy to take charge of her and produce her when called for. If Sergeant Halloran or any of his cohorts try to get to her, tell them that she is under federal arrest and that you can't let them talk to her without my permission. It'll be a cold day in August when they get it."

When Alice and her father had gone, Carnes turned to the president.

"Mr. Fleckner," he remarked, "this case has me puzzled. For all my shortness to Halloran, I thought that possibly there might be something to his theory, but Miss Moulton's statement seems to upset it thoroughly by removing the motive. Of course, I'll check up on her statements, but they are undoubtedly true. Frankly, I can't explain a good many things we need to know. First there is the matter of that gold shipment. Either there was a widespread conspiracy with a lot of people in it, in which case it will be easy to trace it down, or else gold was delivered here last night. In that case, what became of it? Also why did the person or persons who removed it go to the trouble to replace it with bars of copper that are identical in appearance with the purloined gold?

"Second there is the explosion. It might have been designed to get Hunter as well as to get Barnett unless Hunter planted it, a thing I am not yet ready to admit. Also what kind of an explosive was it? It had apparently no center of brisance and it left no fumes or odor and no fragments of container. Also how did it get in? These questions all have to be answered before we are in a position to even start a search for the thieves. With your permission, I'll look at that vault again."

This time Carnes did not content himself with the cursory glance around that he had given the vault on his first visit, but went over it inch by inch in search of clues, even examining the floor and walls with a magnifying glass and sounding every square inch of walls, floor and ceiling. At the end of three hours he returned to the president's office.

"What did you find, Mr. Carnes?" asked Fleckner.

"Nothing," he replied. "I have been over every inch of that vault, searching for a means of egress for the gold or ingress for the explosive and I have found absolutely nothing. I know as much as I did when I started in and no more. The case is beyond my depth."

"What are you planning to do?"

"Call for help," replied Carnes with a wry smile. "There are some aspects of the case that point to the need of more specialized knowledge than I possess. I am going to call up Washington and ask that Dr. Bird of the Bureau of Standards be sent down here."

"Who is he?"

"One of the ablest research men in the Bureau," replied Carnes, "and one who doesn't confine his research to the regular routine. For instance, he knows more about blood stains and dust explosions, to mention only two specialties of his, than any other man in America. He has helped us out several times on counterfeiting cases. When he comes, I want him introduced as a representative of the *Washington Post*. No one but you and I are to know his real identity."

"How soon will he get here?" asked the president.

"If I can get in touch with my chief, he will make arrangements for him to get a plane at Bolling Field and he will be here inside of three hours. Can we get into the bank tonight?"

"Telephone me as soon as he arrives and I'll meet you at the bank."

"Fine," replied Carnes. "Now may I use your Washington wire?"

THREE hours later a plane roared to a landing at the Philadelphia Navy Yard and Carnes greeted the passenger. Dr. Bird was grossly misnamed. There was nothing of the bird in his appearance, if one except the ostrich. He stood well over six feet in height and was broad and burly in proportion. His prognathous jaw and unruly shock of curly hair gave him the air of a prizefighter, and it was not until an observer noticed his hands that the scientist stood revealed. Long slender delicate hands they were; the hands of a musician or a sleight-of-hand performer, with long tapering sensitive fingers stained in splotches by acid.

"Hello, Carnes," he roared in a bull-like voice, "what have you got on tap this time? Another counterfeiting case?"

"Not this time, Doctor," replied Carnes as he hastened forward to grip the outstretched hand. "This time it's robbery, with possible murder."

"Good," ejaculated the Doctor, "murders are always interesting. Glad I brought my traveling laboratory. I can't see where I would come in on a robbery though."

"This is a rather unusual robbery," replied Carnes as he picked up two of the four bags that the pilot had unloaded from the plane. "I think that you'll find it interesting."

"All of your cases are unusual, even the most commonplace ones when you get stuck," snorted the Doctor. "If you chaps would just manage to learn a little elementary chemistry you would save me a lot of wildcat trips of this nature."

"Every man to his trade, Doctor," answered Carnes cheerfully. "You would be broken-hearted if we didn't call on you occasionally. Come along, I've got a taxi waiting, and we'll stop and feed you five cups of black coffee before we go to the bank."

"All right, if it's good coffee," replied the Doctor as he picked up the remaining bags and followed Carnes.

When they arrived at the bank, Fleckner met them and was anxious to give all the details, but the Doctor stopped him impatiently.

"I don't want to hear a thing about it, just now," he announced. "Carnes tells me that there are certain scientific aspects involved and I want to approach the problem with my mind unencumbered with details of what you have done and theories you have propounded. I'll ask questions as I need to."

As they entered the vault the Doctor stopped and sniffed like a fox-terrier.

"Explosion, eh?" he remarked to Carnes. "Where was the stuff planted?"

"That's one thing for you to tell me, Doctor," replied Carnes. "I have been over every inch of the vault and there are no signs of a local center of brisance."

"No signs of a container either, I suppose?"

Carnes replied in the negative.

"Hum," said the Doctor, "that eliminates a nitrogen carrying explosive. I could smell traces of the fumes yet if one had been used. My nose is exceptionally sensitive to nitrogen oxides. Did you find any gas pipes?"

"There is no gas in the building and I have tapped every inch of the floor, walls and ceiling and there is no place for the entrance of gas."

"It was a gas explosion all the same," replied the Doctor positively. "Was there a recording thermometer or hygrometer in the vault?"

The president pointed silently to the two instruments.

"Probably wrecked by the explosion," remarked the Doctor as he picked them up. "No they're not, they're still working. Let's see the dials."

He studied the dials for some minutes in silence, apparently making some mental calculations. He took a steel tape from his pocket and measured the vault carefully and made some elaborate calculations on a pocket pad.

"What is that stuff?" he said, suddenly pointing to the pile of copper bars.

"That stuff was checked in by the bullion teller, Hunter, for gold last night," replied Carnes, "and this morning after the explosion, it turns out to be copper. Hunter is under arrest for robbery and murder."

"Why murder?"

"His assistant was killed by the explosion. You'd better let me tell you the whole story, Doctor," said Carnes.

"All right, go ahead, I might as well let you get it out of your system, before you blow up under the strain of holding it," he replied seating himself on the copper bars and preparing to listen.

"Have you any report on the bank guards?" he asked when Carnes had finished his story.

"Nothing definite. The three who carried in the bars are all retired enlisted men of the Army with excellent reputations."

"What about the shipment?"

"Regular in every way. The stuff was assayed and was in sight of an armed messenger from that time on. One of the messengers who traveled with it has been with the express company for twenty years. The other one has only been with them for about a year and we are working on his record, but so far it has been perfectly clear."

"What was Hunter doing last night?"

"He was with his fiancée. He managed to get engaged to the daughter of the cashier here last night and he spent the evening with her. She tells a yarn about trying to work the radio most of the evening and hitting a lot of static, but I expect we know what they were doing all right."

"Static?" asked the Doctor sharply. "Was there any bad weather here last night?"

"It was a calm beautiful night," replied the president.

"Funny time to have static trouble," remarked the Doctor.

"I don't know that she said that it was static," answered Carnes. "She said it was a buzzing noise that prevented them from getting anything and I took it for static."

"Buzzing noise?" said the Doctor. "On what wave length?"

"I don't remember her saying anything about that."

"Call her up and find out."

Carnes returned in a few minutes.

"It was all over the dial, but seemed worst about 450 meters," he reported.

The Doctor consulted a table that he drew from his pocket.

"Funny," he commented. "Carnes, what did you say the names of those express messengers were?"

"I didn't say," replied Carnes, "but the name of the older man is Fowler and the younger is named Wallace."

"Wallace?" asked the Doctor, "Is he a hunchback?"

"No indeed, he's quite tall and very straight."

"It can't be the same man then, although it might explain a great deal," he said. He paced the floor for a few moments muttering the name "Wallace" under his breath. Suddenly he turned to Carnes.

"I may be crazy or I may not," he said. "At any rate there is more to this case than appears on the surface. Carnes, go out and buy me a radio set. Any sort of a two or three tube set will do, provided it works on a loop. Get tubes and batteries and everything needed to put it in operation. Also get me a hacksaw and half a dozen blades and a bottle of strong ammonia."

WHILE Carnes was gone, the Doctor busied himself in taking from the cases he had brought with him several instruments and setting them up on a table. By the time he had finished, Carnes arrived loaded with bundles.

"All right, Carnes," he said, "give me the saw and the ammonia and set up your set. When you get it in operation, tune in any local station to make sure that it's working right and then set it at 450 meters and let it alone. I'm going to examine these bars."

He moistened his handkerchief with ammonia and rubbed the surface of one of the bars briskly. When the handkerchief had turned blue he examined it carefully under a binocular microscope, but turned away with an exclamation of disappointment. He took the hacksaw and sawed one of the bars in halves and scrutinized the sawn surface under a powerful glass. Again he muttered his disappointment and took up a pinch of the copper dust made by the saw. This he dissolved in an acid that he drew from one of his bags and put the solution in a small glass tube which he set up in one of his instruments. A moment later a tinny arc began to spark behind the tube, and simultaneously the radio set gave off a raucous tearing sound.

"Shut that thing off," he directed as he applied his eye to an eyepiece projecting from the instrument. As he did so, he emitted a low whistle of surprise and consulted a book which he took from the instrument carrying case. He whistled again and looked long and earnestly through the instrument. Again and again he adjusted it, testing it with standard solutions taken from one of his cases, but his astonishment grew momentarily more manifest.

"What is it?" asked the president breathlessly.

"What? Oh, that? That's a simple electric arc spectroscope. When you volatilize an element in the arc, it gives a certain characteristic set of colored lines on the prism. Every element has its own set and no two are alike. It's one of the most certain methods of detecting small traces of a foreign element. Those bars are copper all right, but the lines aren't quite in place. Keep still a minute and let me think."

For some minutes he paced the floor.

"It isn't possible," he said at length, "and yet it must be. At any rate, we'll have to take a chance on it. Carnes, my arrival in Philadelphia must be kept a complete secret. This is very important. In the mean time go home and take that radio set with you. Where are you staying?"

"At the 'Benjamin Franklin.'"

"Good. Stick close to your room phone so that I can reach you. In the meantime keep that radio set tuned in on 450 meters and let me know at once if it gives out a squawk like we heard tonight when my spec. was running. Make arrangements for garage room for a truck that will come up from Camp Vail in the afternoon. Better arrange to have it kept at Frankford Arsenal out in Bridesburg. That's out of the way and it's a government installation. Mr. Fleckner, remember that no one must know of my arrival. In the meantime you will give this story to the press and see that it is headlined."

He wrote rapidly for a few minutes and handed the paper to the president. He took it and read it aloud with a puzzled expression.

"Officials of the Philadelphia Federal Reserve Bank, in an attempt to solve the mystery surrounding the theft of over a ton of gold bullion, today sawed in halves one of the bars of copper that was found in the vault. This led to the discovery that there was a core of pure gold about one inch in diameter in the center of it. The balance of the bars will be sawed tomorrow. In the meantime, a scientist from the Bureau of Standards has been sent for and will arrive sometime tomorrow afternoon."

"That's correct," said the Doctor. "Now hold that until afternoon, but be sure that it makes the late editions. I don't want it to appear on the streets before five. If you could manage to have it published in a extra about six-thirty, that would be all the better."

"Is there gold in the center of that bar?" asked Carnes in astonishment.

"No, unfortunately, there isn't, but it won't hurt to publish that. Can you arrange to get that story out as I want it?"

"There will be no trouble about that," replied the president. "I own a good deal of stock in the Bulletin and I'll arrange to have an extra on the streets at six-thirty sharp. But I don't understand what it's all about."

"If I'm right, you will tomorrow. If I'm wrong you probably never will," replied the Doctor with a laugh. "Now let's go to bed and get some sleep. We may not have any tomorrow night."

"What shall we do in the meantime?" asked the president.

"Each of you do what I told you to do. Aside from that, don't talk, keep your mouths shut and say nothing. I'll be at the 'Bellevue-Stratford,' registered as Walter Griffen."

The day passed slowly for Carnes. Early in the morning he telephoned Frankford Arsenal and made arrangements for keeping the Camp Vail truck. With nothing to do, he sat in his room and listened in vain for the tearing sound from his radio. He had a strong desire to telephone the 'Bellevue-Stratford,' but his previous association with Dr. Bird tended to discourage him. The Doctor always preferred to work in an atmosphere of mystery in order, as he put it, "to be able to revel in his successes and to bury his failures."

At six he left his room long enough to snatch a bite to eat. As he left the restaurant a newsboy came down the street crying an extra. Carnes bought one and read, under huge headlines, an elaboration of the item the Doctor had written the night before. He hastened back to his hotel in hopes of a message, but none awaited him and his telephone was silent until nearly seven-thirty. Then it rang and he literally jumped for the receiver.

"Is that you, Carnes?" asked the voice at the other end of the wire. "This is Griffen. We'll pick you up at the corner of Ninth and Chestnut in about fifteen minutes. Watch out for an army truck and board it."

When Carnes boarded the truck, which slowed down for him, he found Fleckner and Dr. Bird in the covered body with two men dressed in the olive drab of the army. A glance forward showed him that the driver also wore a uniform.

"Hello, Carnes," said the Doctor. "Make yourself at home. This is Sergeant Welman of the Signal Corps, one of the best radio direction finders that the army has. Give Carnes a headset, Sergeant, he might as well get in on the fun."

"What is it all about?" asked Carnes as he adjusted the headset and began to receive WIP's evening programme.

"You'll find out in time," replied Dr. Bird with a chuckle. "Meanwhile, enjoy the music and listen for anything unusual."

The truck wandered aimlessly up and down the streets and Carnes settled himself to wait. He saw that all of the other occupants of the truck were wearing headsets which were connected to a large receiver surmounted by a loop that stood on an elevated platform built in the center of the truck. From time to time, the Sergeant would adjust the dials of the receiver, tuning in a new station, only to tune it out again in a few minutes. Half an hour passed in this way and then the Sergeant turned to Doctor Bird.

"Are you sure that you have that wave-length right?" he asked.

"It's right as nearly as Miss Moulton could tell me. If it shows up at all, we ought to get it for she said that it covered the whole dial."

"It seems funny that more people didn't hear it," remarked the Sergeant.

"If it's what I think it is, it would be very easily trapped," replied the Doctor. "It was probably a high carrier wave that came down only at intervals. Of course I may be— What's that?"

"That" was a peculiar rending, tearing sound in the head sets that drowned out everything else.

"Stop her," called the Sergeant to the driver. He removed his headset and held it at some distance from his ear while he manipulated the loop mounted on top of the receiver. The sound increased in intensity and the Sergeant began to work on his fine adjustment. For several minutes Carnes could detect no difference in the intensity of the sound and at last even the Sergeant was satisfied. A flashlight glowed for an instant.

"Fifty-three-point-six, uncorrected," he announced. "Got the location, Kelley?"

His companion grunted an assent and the Sergeant called to the driver.

"Take the next turn to your left and go straight ahead."

The truck had not moved over two blocks before the sound suddenly died out.

"It's stopped," said the Sergeant.

"I doubt it," replied the Doctor. "Driver, go back a couple of blocks and see if we can pick it up again."

The truck retraced its path and again the tearing sound dominated all others.

"That's what I suspected," said the Doctor. "Go ahead, driver. We'll just have to hunt for another spot where we can locate it."

As the truck drove on, Kelley carefully set an angle with a protractor and laid off a line on a chart which Carnes saw was a map of Philadelphia. The truck drove on for several miles.

"Stop," called the Sergeant.

Carnes listened carefully and could detect a faint hum of the same nature as the sound they had plotted. The locating performance was repeated and when the second line had been laid off the Sergeant showed the chart to Dr. Bird.

"Too acute an angle for good work," he remarked "We'd better try to get another shot."

The Doctor nodded and the truck set off again. For nearly an hour it cruised around without result.

"Where does Moulton live?" asked the Doctor suddenly.

"On Judson Street," replied Fleckner.

"Somewhere in the vicinity of Tioga and Twenty-second."

"Good enough," commented the Doctor. "Driver, go north on Broad Street to Tioga and then turn left to Twenty-second."

At Tioga and Twenty-second, the receiver was still mute, but as the truck crossed Twenty-third, the tearing noise again broke forth.

"Stop," called the Sergeant.

The new line was plotted and the Sergeant studied the map.

"I'm satisfied," he announced. "That transmitter is located on Chestnut Street between Eleventh and Twelfth."

"It *should* be near the bank," muttered the Doctor. "Driver, take us to the corner of Eleventh and Chestnut."

"What's this all about?" asked Fleckner as the truck set off again.

"This is a radio locator truck from Camp Vail," explained the Sergeant. "We are locating the source of that sound you heard in your headset. This is a very sensitive receiver equipped with a loop and by turning it until we get the maximum intensity of sound, we are able to lay off a line on which the sending station must be. By getting several of these lines from different points, we are able to locate the transmitter. It must be at the intersection of the lines."

"I can see that," replied Fleckner, "but what has it to do with this case?"

"I don't know, sir," said the Sergeant. "My orders from Dr. Bird were to locate the set and that's all I know."

Dr. Bird volunteered no information and Fleckner relapsed into silence. The truck stopped at length at the corner of Eleventh and Chestnut and the Doctor climbed out, followed by the Sergeant, who carried what looked like a suitcase with a loop on top in his hand.

"Come on, Carnes," called the Doctor. "I think we are going to find our man now. You can come too, Mr. Fleckner, if you aren't afraid of a little gun play."

"Don't you think you had better explain just a little, Doctor?" asked Carnes.

"I haven't time now. Listen and get this straight. Sergeant Welman will lead us to a door on the opposite side of which will be the sending set that we have been locating. We will break down that door and enter. I have a blank search-warrant that will cover us if we make a mistake. When we enter, arrest every one in the place. They may try to resist. If the man that I suspect is at the head of it, I am sure they will. Get them, but above all, don't let them destroy any apparatus. I know what I am doing, Carnes. Just obey orders and everything will be all right."

As they started down the street, Sergeant Welman adjusted a small pair of headphones attached to the case he was carrying to his ears and took the lead. From time to time he would set the case down, make a few adjustments and then resume his onward progress. Before a large office building he paused and then stepped in through the entranceway. Up the stairs he led them and down a corridor, stopping with increasing frequency to work on the case. At last he paused before a closed door and pointed silently. The group listened and could hear a faint crackling hum from behind the door. The Doctor drew his automatic and motioned to Carnes to do likewise. Carnes drew his gun and the Doctor, motioning him to follow closely, took hold of the handle of the door and tried it. It yielded to his touch and with a sudden effort, he thrust it open and entered, Carnes and Fleckner following closely on his heels.

A CURIOUS scene met their gaze. The room was in semi-darkness save where it was illuminated by a reading lamp set on a table. At the table sat two men bending over a piece of apparatus from which a flickering blue light came, accompanied by the crackling noise that they had heard outside. The room smelled strongly of garlic.

As they entered, the two men sprang to their feet. The nearer one wore some sort of a uniform, but no one noticed him, for the other figure completely dominated the scene. He was a man who might have been tall had he been straight, but whose hunched back reduced his stature to a bare four feet. His short bandy legs formed a striking contrast to huge arms that hung nearly to his knees. Topping this misshapen body was the face of a Grecian God, thin almost to emaciation. Huge black eyes like two burned holes in a blanket regarded the intruders with merciless intensity.

"Good evening, Doctor Wallace," said Dr. Bird as he stepped forward. "I rather thought that I would find you at the bottom of this. So far as I know, you are the only man in the United States with the imagination to conceive a scheme like this or the brains to carry it out."

The lips of Dr. Wallace curled in a thin-lipped wicked smile.

"Why didn't I kill you before I started this?" he said softly to Dr. Bird. "I should have known that if I were the only man able to carry out my experiment, that you would be the only one who would be able to solve it."

"That's where you did make a mistake," replied Dr. Bird lightly. "Hold on there!" he cried suddenly and sprang forward.

His movement was quick, but Wallace moved like a cat. Before Bird could stop him he had reached the wall and closed an electric switch. There was an explosion and the instrument that had been on the table flew to pieces. Carnes and Bird stood paralyzed for a moment by the crash, but were galvanized into action as the explosion was followed by the vicious cracking of a pistol that Wallace had drawn from his pocket. Dr. Bird's pistol dropped from a bleeding hand, but Carnes' gun woke to life. As it spat forth its message of death, Wallace swayed for an instant and then pitched forward on his face. Carnes kept both Wallace and his companion covered while he backed toward the wall and groped for a light switch. Fleckner interpreted the movement correctly and aided him and an instant later the scene was brilliantly illuminated.

Wallace lay face downward in a pool of blood while his companion stood with blanched face and elevated hands. Dr. Bird ran forward and bent over the prostrate Wallace.

"Are you hurt badly, Wallace?" he asked.

"You've done for me all right," said Wallace in a choking voice, blowing flecks of bloody froth from his lips. "Punctured lung, I think. Damn you, Bird, you were too clever. I left you out of my calculations. How much do you know?"

"I know a great deal," replied Dr. Bird, "but some things puzzle me yet. If you are dying, why don't you make a clean breast of it?"

"What do you want to know?" asked Wallace.

"How did you get your synthetic gold into the bank as a Golconda shipment?"

"That was easy. My brother there," he paused and pointed to his companion, "got a position about a year ago as an express messenger and he rode with the shipment. In the same car were eight boxes of books which really contained my stuff. He gave the other messenger knockout drops and switched the bars."

"Simple," commented Carnes.

"How did you polymerize that copper?" asked Dr. Bird.

The ghost of a smile appeared on Wallace's face.

"I expect that you would like to know," he said, "but you'll never find out. My brother doesn't know and I destroyed my apparatus as soon as I finished. This is my dying statement and I want to make it clear that I was the brains of the whole scheme. My brother was just a tool in my hands. As soon as I heard that you were summoned, I wired my disintegrater with a charge of explosive inside and you saw the result. You will never be able to reconstruct it. I made only one mistake. I miscalculated the force of my disintegrating ray. It didn't go deep enough."

"Yes it did," replied Dr. Bird. "That newspaper story was one that I gave out in the hope of getting you to start your apparatus up again. You did a good job the first time."

"Fooled, by God!" exclaimed Wallace as he strove to rise to a sitting position. "Damn you, Bird——"

THE sentence ended in a bubbling grunt. The blood gushed from Wallace's lips and his head fell forward. Dr. Bird leaned forward and listened at the chest of the prostrate man for a moment and then rose to his feet.

"There, gentlemen," he said dramatically, "lies the body of one of the most brilliant geniuses of this generation."

He removed his hat and bowed to the prostrate figure.

"Put cuffs on your prisoner, Carnes, and come along. We're going up to the District Attorney's office. I had a little chat with him when I got my search-warrant and he is waiting for us. He has Hunter up there, also the future Mrs. Hunter and her father. I'll explain there."

In the District Attorney's office a half hour later, Dr. Bird leaned back chewing at a cigar.

"Doctor Frederick Wallace," he began, "was the most brilliant scientist of this generation, but he had a criminal twist in his mind. How far his physical misfortunes warped his morality is hard to tell. He may have been more to be pitied than blamed. He worked at the Bureau for some time, but his ideas were far above our routine work and he quit. I lost track of him and hadn't thought of him for several years when this case came up.

"When I got to the bank and looked around, I realized, of course, that the explosion was caused by gas, but my sense of smell is unusually acute and I could detect no trace of any unusual odor. Then I looked at the recording hygrometer and the answer was plain. You gentlemen probably know that when hydrogen gas is mixed with air, it explodes quite violently, giving as its only product of explosion, water vapor. The hygrometer showed a sudden great increase in the amount of water vapor in the air immediately after the explosion and I knew that it was caused by hydrogen gas. The next thing was to find out how it got in there.

"I discarded the idea of a pipe, for Carnes assured me that there was none and I know what a careful investigator he is. The next thing that attracted my attention was that pile of copper bars and I figured that there must be some connection. Where the gold got out and that copper got in, hydrogen gas could get in too. I hadn't an idea, so I started asking the first things that came into my mind. Carnes mentioned that radios had given trouble the night before. I knew that it was a perfect night for reception in Washington and Mr. Fleckner assured me that it was a fine night here. Besides the description was not that of static, and the combination set me to thinking.

"I don't know why I asked Carnes the names of the express messengers who rode with the shipment, but I did and when he said 'Wallace', it brought to my mind some experiments that Dr. Wallace had been working on, but the whole idea seemed too weird for credence. However, I could see no other solution and I took a chance.

"Now to properly explain this, I must give you a little science. You may have heard of the periodic table of the chemical elements. In any case, it is a method of arranging the elements in the order of their ascending atomic weights in such a manner that elements of like properties fall into groups. The group that attracted my attention was the second, which contains among other elements, copper with an atomic weight of 63.6 and gold with a weight of 197. If we multiply 63.6 by three and add six, we get practically the atomic weight of gold. The atomic weight of hydrogen, by the way, is 1,008. Here we have the three elements entering into the problem definitely connected in a common chemical ratio, namely, one, three, and six.

"While he was in the Bureau, Wallace was working on the problem of synthesis and analysis of elements. If it were possible, as he used to contend, to polymerize copper and to add the right amount of hydrogen and energy, one might get gold or something resembling it. Such a synthesis might easily be unstable and might easily disintegrate under the influence of a wave length of exceeding shortness. If it did disintegrate, the products would be copper and hydrogen gas.

"I sent Carnes out for a radio set to find out whether the spark that I suspected was working, but it was not. Then I sawed one of the bars and subjected the copper

(*Continued on page* 1065)

VITAMINE

WE do not know what electricity is, but we have learned some of its uses, which knowledge is being extensively utilized. Although the lack of vitamines has been claimed by eminent authorities to be destructive of the well-being of the human being, nobody has as yet learned exactly how they operate—perhaps it is by catalysis. It is no simple matter to predict the possibilities attendant on such a discovery. Dr. Lemkin, who is a chemist of high standing and an author, is personally interested in the subject of vitamines and is therefore qualified to visualize in good scientific fiction some of their possibilities. There is no telling what wonders science may yet perform for the good of humanity by the use of vitamines, when they have learned more about them. This is a truly scientific story of intrinsic value.

Illustrated by WESSO

“SCURVY,” said Dr. Beardsley in his familiar high-pitched and trembling voice, is what we medical men call a ‘deficiency disease.’ ”

My answer was a nod of courteous assent. I had ceased wondering why the aged doctor had summoned me to listen to a private lecture on diet and disease, for I suspected the unfolding of another radical discovery from his fertile brain. Although I had a vague recollection of having heard such terms during my student days, their essential meanings had faded away in my memory almost to the vanishing point.

“And why is it known as a deficiency disease?” continued the old professor in his best classroom quiz style. Evidently expecting no answer to his question (I certainly could have vouchedsafed no satisfactory reply on the spur of the moment) he went on: “Because the diet is deficient in one important food element, the one we now know as vitamine C.”

I readily agreed to the irrefutable logic of his argument and settled back, awaiting the rest of his scientific discourse.

“But scurvy is by no means the only disease that results from a nutritional deficiency,” continued Dr. Beardsley. His cracking voice rose to a higher pitch and his faded gray eyes acquired almost a youthful flash as we warmed up to his subject. “Feed a child on a diet that is lacking in vitamines A and D and it will develop the dreadful disease called rickets. Deprive an individual of the essential vitamine B and he will fall victim to the Asiatic disease known as beriberi. A diet deficient in vitamines A and B will bring on pellagra. All of these are deficiency diseases.”

The old doctor stopped to catch his faltering breath, and raised a shaky hand to mop his brow. His air of suppressed excitement appeared to indicate that he was fairly bursting with some kind of news, probably of another of his long list of scientific achievements.

To me, Dr. Beardsley had always been an interesting enigma. It was now almost twenty years since I had first sat at his feet, one of his many admiring students at the University. His lecture course in biological chemistry was among the most popular in the entire curriculum, principally because of the magnetic personality of the old physician. Yes—old he was, even in those days—aged and stooped, with the weight of more than three score years on his narrow shoulders.

Yet, despite his age, the doctor was a veritable tornado of mental and physical energy. At a time when most men have withdrawn from the whirlwind of struggle and strife, leaving the world of mad endeavor to younger hands and clever intellects, Dr. Beardsley was still to be found in the front ranks. This indefatigable, almost inexhaustible, dynamo of human energy still carried on in the van of medical and educational achievement.

Grand old Dr. Beardsley! In those rosy days of university life he was to us eager students an unending source of joy and inspiration. To me he represented the summation of mental vigor and physical magnetism. We were quite chummy together, and frequently he invited me to come over to his laboratory and watch some of his experiments. Frankly, I was at a considerable loss as to the nature of most of them. To tell the truth, I had elected Dr. Beardsley's lecture course for no more serious a reason than that I needed the two points for my graduation. And since the attractive personality of the old prof. was one of the major topics of conversation about the campus, I determined to enroll in his subject.

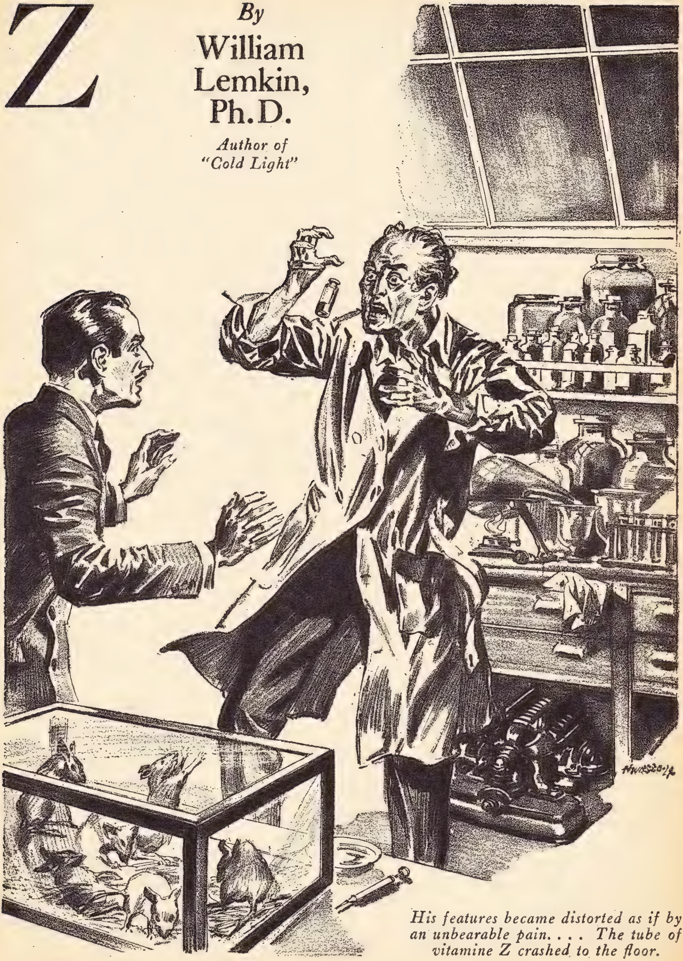
Even with my extremely meagre background of biology and medico-chemistry I was still conscious, in those student days, of the phenomenal nature of some of those experiments that the doctor was conducting. The vast scope of his scientific investigations was a revelation. He thought, worked and lived in terms of human betterment and progress; his advances in the realm of biological science contributed a substantial achievement in that direction.

When I left college to enter newspaper work, I saw to it that I did not lose contact with the aged professor. Thanks to the smattering of medical and chemical information that I had absorbed from being exposed to the influence of Dr. Beardsley both in his classes and in his laboratory, my reportorial assignments frequently carried

Z

By
William
Lemkin,
Ph.D.

Author of
"Cold Light"



His features became distorted as if by an unbearable pain. . . . The tube of vitamine Z crashed to the floor.

me to his scientific workshop to cover some new contribution that he had made in his chosen field. And during the course of almost a decade, this tireless investigator was responsible for some truly revolutionary achievements.

You recall his remarkable work, several years ago, in the discovery of the new ductless or endocrine gland that we now know as the "infra-thyroid." And how he isolated its internal secretion or "hormone" and proved conclusively that it was the determining factor in producing those manifestations of emotion that we classify as fear, hate, joy, love, and anger.

Then, too, I need do no more than remind you of his accomplishment in synthesizing the now famous "ferro-calcium," the strange material that stimulates to such a remarkable degree the depositing of lime in the long bones of the skeletal structure. Do you remember what a howl of derision burst forth at Dr. Beardsley's blunt statement that any adult of subnormal stature can now add from six to eighteen inches to his height? And didn't that wave of scorn and ridicule turn almost overnight to the wildest acclaim when the modest scientist demonstrated the soundness of even his most astonishing assertion?

ONE might marvel at my intimate knowledge of things medical and bio-chemical, considering that I am essentially a reporter, whose schooling along those lines is of necessity highly limited if not absolutely nil. However, I had the extreme honor and privilege of being the first to convey the news of these revolutionary developments to the layman world through the medium of my paper. For that reason I soaked up more than just a superficial amount of information about the underlying principles of these classic researches.

And here I was again, lending a patient ear to the scientific discourse of the white-haired savant. It was evident in his very tone and demeanor that another of his momentous pieces of research was soon to see the light of universal publicity and acclaim.

"Now all medical men," continued Dr. Beardsley in his faltering voice, "are pretty thoroughly convinced about the nature of these deficiency diseases. The classical investigations of Mr. Collum, Eddy and others have given conclusive proof that when these mysterious vitamines are absent from the diet, definite diseases follow. Scurvy, beriberi, rickets, pellagra, each of these is brought on by a deficiency of some one or more of the essential vitamines.

"But," and here the old physician's eyes blazed forth with the light of triumphant accomplishment, "why stop with these diseases? What about all the scores of ailments and infirmities that beset human flesh? What of them? What of tuberculosis, the dreaded white plague and the scourge of mankind from the dawn of creation? What about the insidious typhoid? What of the countless diseases of children, which snuff out the lives of such an appalling percentage of infants in the first months of their existence? What about those fatal organic diseases that attack the vital portions of the human mechanism, the digestive system, the kidneys, the heart——!"

In the fervor of his discourse, Dr. Beardsley had risen from his seat and stood over me as he poured forth his stream of unanswerable questions. Suddenly the words died in his throat in a strange gurgle, his eyes bulged alarmingly, and his fingers clutched feverishly at his breast. For a moment I thought the old man was about to collapse to the floor, and I leaped forward to support his swaying body.

He appeared to recover immediately, however, and he waved me back with a gesture of assurance.

"It's my heart again, Paul," he whispered weakly as he sank back into his chair. The perspiration came out in glistening beads on his pale forehead, and his voice trembled even more than before.

"I guess I shouldn't allow myself to get worked up to such a high pitch," he smiled faintly. "However, it's the one thing that means most to me just now, so you will perhaps excuse my boyish enthusiasm."

I cautioned the doctor against any undue physical exertion or mental strain, and, following a brief rest, he continued with the unfolding of his pet subject.

"Can't you realize what I'm aiming at, my boy?" queried the old man eagerly. Although I was beginning to see the light of dawn, I ventured no rash theory of my own, choosing rather to let him reveal the nature of his revolutionary discoveries without my inexpert assistance.

"All diseases," and the words came forth with the deliberate and forceful impact of sledge-hammer blows, "to which human flesh is heir—all of them are deficiency diseases!"

Dr. Beardsley leaned back with the triumphant air of a victorious warrior and regarded me closely to note the effect of this startling announcement.

FRANKLY, I was somewhat taken aback by the daring of the doctor's assertions. True I had learned from constant experience with the famous scientist and his astonishing methods always to expect the unexpected. All of the doctor's previous contributions to the scientific knowledge of the day had been in the nature of phenomenal revelations. By their very unconventionality and daring they were sufficient to leave one breathless with amazement. Yet this new proclamation, bolder and more far-reaching in its scope than any that I had heard before, was, to be candid, an extremely hard pill to swallow.

"But my dear Dr. Beardsley," I remonstrated, "do you realize what you are saying? Are you not at one stroke shattering traditions and beliefs that have been the very basis of the science and art of medicine for generations? Do you mean to imply that the absence of these mysterious vitamines in our diet is the primary cause of all human diseases?"

"Precisely that, Paul, only let me explain further. Don't get an incorrect impression. The commonly accepted deficiency diseases which I mentioned at first are definitely due to a lack in the diet of the four or five vitamines that we designate by letters at the beginning of the alphabet. That much is pretty generally agreed upon by most medical workers.

"My contention is that we have barely scratched the surface in our study of vitamines. Much as my colleagues and contemporaries in the field of nutritional and pathological research have accomplished, their methods have been of the very crudest." And here the old scientist's voice was tinged, perhaps unconsciously, with the merest trace of scorn.

"The truth of the matter is that they have been groping hopelessly in the dark in regard to the nature of vitamines and the true cause of disease. However, for the last four years I have been working secretly on the problem, and I am almost ready to announce to the world the nucleus of my discovery.

"In substance, Paul, here is what I have proved to my own satisfaction: In addition to the five vitamines whose presence is now universally accepted, all foods contain varying amounts of other vitamines, the existence of which has never even been suspected hitherto. As to the exact number of these mysterious substances I am at present in no position to venture a guess, but my work has led me to believe that there must be thirty or forty of them. Of this number I have succeeded in isolating and identifying eighteen.

"Now here is the astonishing part about it: Every disease that is now known, whether pathological or organic, is directly traceable to a deficiency of a particular vitamine. That seems like a rather bold generalization, does it not?"

"It appears that way to me," I replied. "Does that mean that a disease such as, for example, diphtheria is not caused by a germ at all, but by the lack of a specific element in the diet which you classify under the head of 'vitamines'?"

"That's exactly it, my boy!" cried Dr. Beardsley. "You are grasping the idea admirably. Of late, physicians have been prone to swallow too readily the bacterial theory of disease. Doctors have been too confident that all our human ills may be pinned onto the lowly micro-organism. While I freely admit that a mass of apparently corroborative evidence has been adduced which would lead the unwary and shallow thinker to the belief that most diseases are caused by bacteria, I firmly maintain that relatively crude and inaccurate methods of manipulation and experiment, coupled with a narrow vision and a distorted perspective on the part of our scientists, have brought about the result that the germ theory of disease has been foisted on a gullible world. and has been accepted as law by an overwhelming and a universal acquiescence.

"From the very beginning of my work in medicine and biological chemistry I refused to subscribe to the bacterial explanation of human and animal diseases. In recent years the development of the study of vitamines and of their relation to the so-called deficiency diseases, stimulated me to carry on an exhaustive investigation of the entire subject of foods and their composition, in the hope of extending our knowledge of these essential nutrient elements. Of course all of this experimental work has been conducted with the strictest precautions of secrecy. I was unwilling to announce the nature of my efforts even to my closest colleagues until I had established satisfactory evidence that my theory is justified.

"I have now reached the stage in my experiments where I can say with the utmost confidence and with no fear of serious contradiction that all diseases known to man are deficiency diseases arising from the lack of specific vitamines in the diet of the individual.

"And now, Paul, I have called upon you to come here so that you may be the first to whom my important secret will be divulged."

Dr. Beardsley paused, and sank back with a sigh of relaxation from the tense and strained position that he had maintained throughout most of his absorbing recital. I pondered deeply over the old professor's words. Here was an idea which was truly unprecedented. I had been frequently and forcefully shocked out of some preconceived and firmly rooted notions by the discoveries of the aged scientist. But I must confess that nothing was ever of so startling a character as this iconoclastic theory which Dr. Beardsley was now unfolding to me.

Proof! That's what the all important matter was just now! Proof to give incontestible support to these new beliefs. And I said as much to the professor.

"Plenty of proof," smiled the doctor as he rose from his chair and beckoned me to follow him. Supporting himself with the aid of a cane he shuffled nervously through a door to the right and into the laboratory that adjoined his study.

THE professor's workshop presented the usual appearance common to the inner sanctum of an experimental scientist. A long laboratory table occupied most of the entire length of one wall. Surmounting it were numerous shelves bearing rows upon rows of neatly labeled bottles and flasks, some containing liquids of strange and striking hues. Nearby was a cabinet housing a number of preserved biological and anatomical specimens in jars of assorted sizes and shapes.

Occupying a corner of the laboratory were various pieces of electrical equipment whose nature I was unable to fathom. A number of physiological charts and pictures were distributed about the walls. On the laboratory table was grouped a collection of chemical apparatus that the doctor had evidently used in a recent experiment. I recognized distilling sets with water condensers, extraction funnels, a Bunsen burner and several of the simpler experimental materials with which I had been vaguely familiar many years ago.

However, what struck me most forcibly as I stepped into the laboratory on the heels of Dr. Beardsley was the queer conglomeration of utterly unscientific noises that arose from the far corner of the room. There was a chorus of chirps and gurgles mingled with shrill squeals, and occasionally a low growl that rose to a mournful howl and then died again. One would readily imagine himself rather in a well equipped pet-store than in the staid and solemn confines of a scientific laboratory.

I DIRECTED a questioning glance at the doctor, and he sensed my evident astonishment. With a knowing smile he hobbled over to the corner of the room from which the disturbance seemed to emanate, and I followed expectantly. For the first time I now observed a number of cages similar to those found in bird and animal stores. In one of them some pigeons fluttered about, cooing and gurgling. Two others contained guinea-pigs, while several colonies of white mice scampered around in adjacent cages. Other compartments of rather large dimensions were screened, so as to hide their inmates from view, but the strange noises that emerged from the recesses of these mysterious cages were sufficient to indicate that they housed some forms of animal life in captivity.

"You might have guessed by now," ventured the scientist by way of explanation, "that the animals constituting this assorted menagerie are my test-tubes and beakers, my flasks and other chemical apparatus for the experiments which I am constantly performing. In other words, I have been enabled, by tests and diets administered to them, to work out the vast host of significant facts in regard to the nature of all diseases to which I have alluded in my dissertation to you.

"Let me demonstrate to you, Paul, just how these nutritional experiments are performed." He directed my attention to one of the cases containing two groups of mice, separated by a partition.

"This is a test which I am making to duplicate the classical experiment of Professor Hopkins of Cambridge University. It was this experiment that had more to do in stimulating the modern investigation of the vitamines than any other single factor that I know of. I shall outline it to you briefly, and in doing so I shall present some of the more elementary aspects of the subject of vitamines. Perhaps,—" and a bland smile traversed the wrinkled features of the old professor, "I should have begun my discourse at this point, instead of plunging into the more advanced considerations, as I did. However, you will have no difficulty in deriving a fairly comprehensive working knowledge of the subject, so that you may be enabled, when the time comes, to present to your readers with some degree of authoritativeness and accuracy the nature of the discoveries which I shall disclose to you.

"Now look at the six rats in that compartment at the left—the one marked A. Compare them with the six in the B compartment, and tell me if you note any difference."

No great amount of careful scrutinizing was required to reveal the difference. It was stamped unmistakably in the physical aspect of the two sets of animals.

"Why, doctor, it appears evident that the rats of group A are much smaller and less active and seem to exhibit a sort of anaemic condition. On the other hand the animals of group B look as though they are extraordinarily well-nourished and healthy."

"Exactly," rejoined the physician. "But the remarkable things about these rats is that at the start of this experiment they were of precisely the same weight and the same stage of development. And more remarkable, they have been maintained during the entire period on an identical diet, with but one trivial exception. Every day, each rat of group B receives in addition to its usual food, two cubic centimeters of milk, equivalent to about half of a thimbleful.

I marveled at the astonishing results accomplished by the addition of this insignificant, almost infinitesimal quantity of milk.

"Now let me go back," continued Dr. Beardsley, "and recall to you some pertinent facts about nutrition in general.

"Up to comparatively few years ago, we believed that our diet was perfect if it contained protein, fat, carbohydrates and mineral salts. Each of these has a definite function in the body, and, with a diet comprising the prime food elements in the proper proportion, it would appear that the human mechanism would continue to operate at a point of maximum efficiency.

"Now milk is our most nearly ideal food, containing protein in the form of casein, fat in the form of cream, carbohydrates represented by milk sugar, and certain essential mineral salts, including the bone-building lime. Moreover, these food elements are also found to be present in the exact proportion to make an ideally balanced diet. Hence milk has always been regarded as the finest kind of food for infants and growing animals.

"Let us assume, however, that instead of feeding our body with milk, we supply it with the individual constituents of the milk, namely the protein, the fat, etc., obtained from various sources, taking care, however, to furnish these nutrients in the exact proportion found in the original milk. With our human engine receiving a sufficient amount of the best protein obtainable, enough fat and carbohydrate to satisfy the energy and fuel requirements of the body, and a sufficient supply of inorganic salts, we ought to thrive as well as we did on the original milk diet. Doesn't that appear to you to be a reasonable form of argument?"

"The logic of the case seems to me to be irrefutable," I replied. "An artificial diet such as you describe ought to be every bit as wholesome and substantial as the one made up of milk only."

"True," continued the doctor, "and most scientists did agree that there could be nothing inherently wrong in a synthetic diet of this sort. And yet, look at the results obtained from maintaining these rats on just such a diet. The animals of set A have been fed on an artificial diet consisting of protein, fat, carbohydrate and mineral salts. Their undernourished and anaemic condition is obvious at a glance. On the other hand, compare the rats of set B with them. Their diet has been identical with that of the first group, consisting of the same synthetic mixture of food nutrients, the only difference being the addition of two five-hundredths of a pint of milk each day."

"Perhaps, Dr. Beardsley," I ventured a guess, "the additional nutrients in the milk added to the diet of the B rats are responsible for the increased growth and superior health of these animals."

"Hardly, my boy!" was the scientist's prompt rejoinder. "As far as the most scrutinizing chemical analysis could ascertain the minute quantity of whole milk added to the diet of the B series contained the exact constituents of the synthetic diet. And surely, the actual amount of food and energy material to be found in the half thimbleful of milk is so inordinately tiny as to preclude any possibility that the remarkable growth of the B rats can be ascribed to this additional nutriment.

"Scientists were therefore led to the undeniable conclusion that there must be something present in the milk other than the four essential nutrient elements already known to be there. And a corollary inference was inevitable, namely, that this mysterious substance must be present in very minute proportions, since the amazing results exhibited by the rats of group B resulted from the addition of a very small quantity of milk.

"This is in short, Paul, the story of the discovery of vitamine A, the vitamine found in the butter fat of milk, as well as in several other common foods. It has been proved to be the growth-promoting vitamine, and you can readily see what the absence of this essential ingredient in the diet of the rats in the first group has effected as far as their rate of development and general health is concerned."

"But, doctor," I asked timidly, "if, as you say, this experiment is an exact replica of one performed by a noted professor many years ago to demonstrate the existence of vitamines, is there any particular point in the repetition? Perhaps you have in mind some refinement of manipulation, or some totally unsuspected angle of the question?"

"Now you have it!" cried the aged experimenter, his faltering voice rising to a higher pitch as he approached the subject that was nearest his heart. "Remember that my chief interest at present is the matter of deficiency diseases. The absence of vitamine A in the diet, besides retarding the growth and physical progress of the organism, is, as I told you earlier in our discussion, responsible for the development of rickets.

"But that is not the only pathological condition resulting from a deficiency of vitamine A. I want you now once more, Paul, to examine carefully the rats of group A, namely the undernourished animals, and tell me if you can detect any palpable evidences of the presence of disease."

ONCE again I peered into the enclosure that housed the anaemic rats. They were huddled together in the centre of the cage, listless and inactive, apparently in a somnolent stupor. Occasionally one of them would move its head weakly, blinking its eyes in a half-hearted fashion. Evidently this exertion was too much for it, because it would promptly sink back again into its morbid lethargy. Without a doubt these animals appeared to be, even to my layman's eyes, subnormal. But a close examination of the rats seemed to reveal to me no definite indications of disease.

I was about to give up and turn to Dr. Beardsley for elucidation, when I happened to take another glance at one of the little animals as it blinked its eyes weakly. My attention was attracted by a queer reddening and inflammation of the rat's eyes with a formation of hard crusts about the lids. I also noted a peculiar yellowness of the pupil while the entire organ appeared to be weak and lusterless.

Looking carefully over the other five members of the group, I found them all to be suffering from the strange eye malady, at various stages in its progress. Some of them were afflicted with an accumulation of a sticky exudate that tended to paste the eyelids together. In the case of two of the rats this sticky material had dried into a crust, which made it difficult for them to get their eyelids open. One of the little animals appeared to be suffering from the development of ulcers on the corner of the eye, and it was obvious that the creature was totally blind.

All the rats were certainly in a bad way with regard to the state of their eyes. This was the pathological condition, no doubt, to which the old scientist had reference. I could have kicked myself for nearly tripping up on a thing which now appeared so ridiculously evident.

"I see that your powers of scientifice observation are becoming more acute," chuckled the doctor as he noted the dawning expression in my eyes. "That characteristic eye disease is known as ophthalmia, and is a definite deficiency disease resulting from the absence in the diet of vitamine A. The ailment has been found to develop as well in human beings, although in such cases it is known as xerophthalmia, and sometimes as conjunctivitis. This form of eye inflammation often progresses to the extent where total and permanent blindness results. You can see for yourself that at least one of my test animals has reached that point already. Very often death results before the blindness stage is attained."

Doctor Beardsley now hobbled across to a nearby cabinet and returned with a small vial containing an oily liquid of a faintly pink hue, together with a device which I gathered to be a hypodermic needle.

"Up to the present time," he continued, "all efforts to isolate the various vitamines have met with no marked success. It is true that my colleagues in this field of scientific research have, with their crude and elementary methods of experimentation, isolated certain materials of a high degree of activity, which are claimed to be impure forms of the vitamines. To the best of my knowledge, however, not one of them has yet been able to say to the world 'Here is a sample of pure, undiluted, one hundred per cent vitamine A.' And the same applies equally well to vitamines B, C, D and E.

"However, I have, after ceaseless effort on the subject extending over a period of four years, at last succeeded in perfecting a method or rather a series of methods for detecting, isolating, purifying and identifying each individual vitamine. The exact nature of these methods I am not yet prepared to divulge. Suffice it to say that I now have in my possession samples of the five commonly known vitamines, together with eighteen hitherto undiscovered members of this group of essential food substances. Each is in the highest form of chemical purity, and each exhibits the precise physical characteristics of boiling point, melting point and vapor tension as well as a definite molecular weight, to indicate that it is a pure chemical compound.

"And now I am going to demonstrate to you something of the remarkable therapeutic properties of pure vitamine A. Not only is it a preventive for its characteristic deficiency diseases, but it is a cure as well."

Dr. Beardsley then proceeded to draw up one or two drops of the precious pink liquid into his needle. He chose one of the rats that exhibited an intermediate stage of the eye disease, and prepared a spot on its neck for the injection, taking the usual precautions in regard to antiseptic conditions. Then followed a deft jab, and the simple operation was over, after which the creature was replaced with its fellows.

For a brief moment we watched the test animal in strained silence—the scientist with a look of mingled anxiety and triumph in his faded eyes—I with a feeling that a momentous occurrence was about to take place. I expected something out of the ordinary, but I was completely taken back by the startling outcome of the experiment.

For the space of about ten seconds the rat continued to drowse with his mates in that characteristic state of dull torpidity from which it had not even been disturbed by the intravenous injection of the doctor. Then it suddenly opened its eyes, not sluggishly and weakly as before, but with a vivacious snap, and I was astonished to see the sticky secretion and the hard encrustations on the eyelids slowly melt away in the face of a gentle tearlike flow that began to bathe the afflicted eyes of the rodent.

But even more remarkable than this almost miraculous transformation was the change in the physical behavior of the animal itself. It rose to its feet from the crouching and huddled position that it had occupied with its neighbors, and began scampering about the cage with a liveliness and vigor, that was in sharp contrast to the almost deathlike somnolence of the other rats.

Even if I had been able to think of something appropriate to say at this juncture, I was unable to utter a word for sheer bewilderment at the awe-inspiring phenomenon that was taking place before my very eyes. All I could do was to stare in open-mouthed and open-eyed amazement at the revitalized animal.

"And that isn't by any means all!" These words of Dr. Beardsley seemed to come booming from afar, and shook me out of my hypnotic trance.

"You have witnessed only the very beginning of the transformation," smiled the aged professor. "Within a few hours the animal's metabolism will have been so altered that it will begin to increase in stature and weight, and will in a short time be comparable in every way with the healthy and normal rats of group B."

THE aged scientist, walking off a few paces, suddenly dropped into a chair nearby and closed his eyes. His long discourse, delivered throughout in a terse, forceful manner, together with the suppressed agitation attending his dramatic demonstration, were evidently more than the enfeebled condition of the doctor could stand. He sat there for the space of several minutes, breathing in short and rapid pants, while his seamed face took on an unearthly pallor.

Thus he sat for a brief interval and then the mounting flush in his sallow cheeks convinced me that he was happily in no danger. He opened his eyes slowly and regarded me with a faint smile.

"There's no reason for any worry, Paul," came Dr. Beardsley's reassuring words, uttered nevertheless in a somewhat weak and hollow tone. "If only I can remember to curb my insane enthusiasm a trifle, and learn to take things in a moderate and sensible manner, this rotten heart of mine might last me a little longer. However, I am all right now, my boy."

"My dear doctor," I expostulated. "Don't you think you had better postpone the remainder of your very remarkable demonstration until such time as your physical condition warrants the exertion? I believe that what I have heard and seen here today will make a sizeable chunk of scientific news to hand out to our laymen readers."

"Don't be silly, Paul!" came the prompt retort. "I haven't even started on my main theme. Remember that my primary object in all of this preliminary explanation is to introduce the real subject of my researches, namely, the relation of vitamines to all known ailments, regarded as deficiency diseases of nutrition."

It appeared that the old professor had his mind set rather definitely on continuing, and to tell the truth, I was extremely anxious myself to obtain some additional facts concerning the real core of his brilliant research. Reassured by his rapid recovery from the last attack, and by his promise to tone down his vigorous and energetic style of presenting his precious subject, I followed the doctor back again to the assorted cages containing his test animals.

"There is just one thing more I want to show you," said Dr. Beardsley, "just one demonstration that will give you some notion as to the correctness of my vitamine hypothesis. The rest we shall leave for some later date.

"Of the eighteen new essential substances that I claim credit for having isolated and tested, I am going to try out for your approval 'vitamine K,' my antirabic vitamine."

He reached into the magic cabinet once more and drew forth a tiny vial containing about ten drops of a cherry-colored phosphorescent liquid. Armed with this, as well as with a small piece of fresh meat abstracted from some mysterious compartment of his laboratory table, he approached one of the screened cages. This was the one from which came those queer growling noises that I had detected as we entered the room.

The scientist drew aside the concealing curtain, and revealed a small dog glaring ferociously at us through the bars. Its eyes were bloodshot and watery, its mouth half open and dripping foam, its teeth bared in a hideous grin. As the light of day penetrated the enclosure the mad animal made a frightful lunge at the bars, and struggled furiously against them as if to gain his liberty. I drew back in horror as the snarling little brute spattered his frothy saliva in all directions.

"Hydrophobia, better known as rabies," explained the doctor simply. "In its most advanced stages too. And as you know, a disease that is common to both canines and humans."

Without another word this remarkable man of science poured the tiny quantity of mysterious liquid over the piece of meat and flung it into the cage. The frenzied dog relinquished the viselike grip that his jaws had maintained on one of the bars and he snapped at the morsel. It disappeared in a single gulp.

"In a few seconds," came Dr. Beardsley's calm words, "the osmotic action through the animals stomach lining will have caused the vitamine to be absorbed into the blood capillaries. When the substance has been disseminated through the circulatory system and been transported to every cell in the body, we shall see results."

The results came with lightning suddenness. The mad dog stood staring at us for a brief moment, its bleary eyes glowing dully from their sunken sockets. Then it whined weakly, turned and slunk to a far corner of the cage. The frothy mucus ceased dripping from its jaws, and in a truly miraculous manner disappeared almost entirely. The animal dropped wearily to a recumbent position, with its head resting on its front paws and its eyes half-closed as if dozing. In less than two minutes from the time the dog had swallowed the magical substance it looked no more mad than any sleepy puppy drowsing in the sunshine in some back yard.

In ecstatic forgetfulness of myself I grasped Dr. Beardsley's withered hand and shook it so vigorously that the old man winced, and his very frame trembled.

"My dear doctor, this is marvelous!" I ejaculated. "Stupendous! almost unbelievable!"

The aged physician led me back to his study, a queer, subtle smile playing about his wrinkled face.

"I trust, Paul," he said, "that I have shown you enough today to convince you that I have my finger on the solution of a human problem as old as the race itself. My life is now dedicated to the extirpation of all of mankind's diseases. And I am firmly convinced that the secret lies in the vast field that embraces the vitamines, both known and undiscovered."

"Now, my dear reporter man," smiled Dr. Beardsley wearily, "I've told you enough for one day. For the present the time is not yet opportune for you to broadcast the tidings far and wide. Keep it strictly to yourself for just a short while longer. Tomorrow at three I should like to have you meet me at the University Hospital, and there I promise to acquaint you with some even more amazing facts concerning the powers of my little pets, these phenomenal vitamines."

* * *

In the cool and refreshing evening atmosphere outdoors I strove to get myself to believe that I was not experiencing some highly fanciful dream. The entire proceedings in the scientist's office left me numb with astonishment at the bewildering revelations and miraculous feats of this superhuman wizard. If he could perform such unheard-of acts in the case of dumb animals and their peculiar afflictions, what a far-reaching boon to humanity would he evolve, when he applied his magical vitamines to the host of human ills! The very thought of it was sufficient to stagger my imagination and to send my intellect reeling in a state of dizzy helplessness.

"I HAVE made certain secret arrangements," whispered Dr. Beardsley to me in the lobby of the University Hospital where we met as agreed at three o'clock the following afternoon. "Dr. Horton is in accord with my work, and has given me full permission to try out several of my newer vitamines in the treatment of some common human diseases."

He pointed significantly to the little black bag he carried, and murmured: "Vitamines J, P and R—together with a few of my more recently isolated ones." He appeared to be shaky and nervous, as though he had not slept the night before, or perhaps many nights before. His sunken cheeks were even more sallow than ordinarily, while deep rings under his eyes indicated long and wearying labor of a strenuous nature.

Perhaps it is unnecessary for me to go into any great detail as to the phenomenal occurrences to which I was witness during the course of the next two hours. You need but recall the astounding cases of complete and almost instantaneous cure which the old wizard had effected before my very eyes on the previous day, and multiply them by the necessary factor to bring them up to the level of human cures. You will then obtain a picture of what transpired in the grim wards of this institution of human suffering and physical pain. When the demonstration was over I was breathless and shaken.

We first spent a little time in the children's ward. Dr. Beardsley tackled at the start an exaggerated case of infantile scurvy, a little girl whose body joints had become inflamed and sore, and whose gums exhibited such a marked swelling and softening that the teeth could almost be plucked out with little effort. Within five minutes from the time that the doctor administered an injection of his pure vitamine C, the child was romping around and crying to be allowed to go outdoors and play.

An advanced case of poliomyelitis, a disease affecting the spinal cord, responded to treatment within three minutes following an injection of vitamine R. In about ten minutes the little boy was strutting about the ward in uncontrollable glee, entirely oblivious of the fact that for weeks he had lain helplessly paralyzed from the hips down—a case of infantile paralysis.

Proceeding to other parts of the hospital this extraordinary man left a trail of bewildered patients, or I should say former patients, nearly shocked out of their senses by a heaven-sent cure. A virile stage of typhoid fever answered to treatment so promptly that in ten minutes the erstwhile sufferer was sitting up and clamoring vociferously for a square meal.

An unfortunate woman in the final eruptive stages of smallpox was soon up and about in a most energetic fashion. Hardly had a hopeless tubercular patient received an intravenous injection of vitamine M than he put in a loud demand that he be given his clothes and promptly be discharged from the hospital. I followed Dr. Beardsley from ward to ward, helping whenever I could in the manipulation of the treatments, standing by in open-eyed amazement when my assistance was not required.

Finally his supply of precious vitamines was exhausted. I could see plainly that the physician's very meagre reserve of vital energy was similarly exhausted. His thin frame trembled alarmingly as I helped him into the waiting cab, and he dropped into the cushions with a sigh of relief.

I could not muster up the proper words with which to express my feelings at the superhuman demonstration that I had witnessed. Presently the weary old man turned to me and murmered.

"There, son you have the whole story or, I should say, very nearly the whole story. Just as soon as I have perfected means of isolating the remaining vitamines, then I shall have at my command a weapon to wipe out all known human disease."

His eyes closed wearily. "Ah—vitamine Z!—vitamine Z!" he muttered half to himself. He appeared to be unaware of my presence. Then with a start his eyes opened and he regarded me with a queer look. His wrinkled old face broke into a weak smile.

"You must forgive this little digression," he whispered. "I am tired, very tired. There is more that I must show you before I am finished, but we shall wait a few days until I have completed my preliminary work. You may expect me to call you for the final instalment of my vitamine exposition during the course of a week or two, perhaps longer. Meantime you will of course breathe not a word of this to anybody. I have enjoined the medical staff at the hospital to maintain a strict secrecy regarding my cures this afternoon, and they will suppress all news of my discoveries until the time is ripe for public announcement.

"And when I present the last act in my vitamine drama I guarantee you that all the other remarkable things which you have witnessed will pale into insignificance."

I assisted him up the steps of his dwelling and, after a brief good-night, I stood listening to his retreating footsteps shuffling wearily down the long corridor.

"What a genius that man is!" I muttered meditatingly. "Positively an anachronism! He seems to be centuries ahead of this age. A truly marvelous being. A veritable angel, sent by the kind Almighty to relieve a suffering humanity."

* * * *

"VITAMINE Z is the very crux of the whole matter!"

Again Dr. Beardsley's cracked and high-pitched voice rose with ill-suppressed excitement as he plunged into his cherished field.

Over a month had passed since the epochal visit that we had made together to the University Hospital. Although exploding with anxiety and eagerness, I had to content myself with waiting as patiently as I could under the circumstances until I finally received a call to come down to the old doctor's quarters in a hurry.

I must have thundered into the solemn and dignified atmosphere of his laboratory like a western tornado, but I couldn't help it—I was fairly bursting to learn the last startling facts in regard to this magnificent research. I had not the faintest conception that I was to be startled in the manner in which I really was subsequently.

With my first glance at Dr. Beardsley I was dismayed at the great change that a few short weeks had effected. His humped shoulders had acquired an even more pronounced droop. Deep lines of anxiety furrowed his face and his dry parchment-like skin was a sickly yellow. Only his eyes seemed to burn under their shaggy brows with a fierceness that almost frightened me.

"Yes, my dear Paul, it is true that I have been working hard—perhaps too strenuously for my poor old heart. But," and the doctor's face screwed itself up into a knowing grin, "I shall soon fix that!"

"My work is now complete," he cried. "That hopeless dream of the ancient alchemists, that evanescent vision of

Ponce de Leon, the Elixir of Life! I have it in my vitamine Z!"

Once more the trembling old man led me haltingly into his laboratory where I had only recently witnessed those awesome experiments with his test animals.

"Since last I saw you, Paul," explained the doctor, "I have been working night and day on the last great culminating triumph of my efforts. I have isolated and demonstrated all the remaining vitamines. That was a simple task. If each of these substances is a preventive and a cure for a particular human disease, then what would a mixture of them be? Why, a remedy for every known ailment!

"But I soon found that some mysterious influence operated to vitiate the individual powers of these substances when mixed together. Obviously I was on the wrong track.

"So I tackled the problem from a different angle, and now I have it at last! Vitamine Z—the very embodiment of all the virtues possessed by its host of cousin vitamines—extracted from the manioc root of the West Indies and South America by a process of refinement that has never been equalled in the annals of science.

"Vitamine Z will cure any disease, known or unknown. But what is the most dreaded of all diseases? Is it typhoid? Is it tuberculosis? Not at all! Man's greatest fear is the disease of senility—old age!

"Is senility a disease?" the decrepit physician fairly screamed the question at me. "Most assuredly! Old age is nothing more than a progressive weakening and decay of the vital organs—the heart, the blood vessels, the kidneys, the lungs, the digestive system, the glands, the nervous system.

"Scientists like Steinach and Voronoff have foolishly attempted to arrest and cure old age by the transplantation of glands or the injection of glandular extracts. But their experiments have gone for naught because they have not attacked the root of the problem as I have.

"In vitamine Z I possess a substance which will produce an immediate cure for old age, a complete restoration of the diseased vital organs to vibrant health, and consequently a prompt rejuvenation. Man need no longer fear the advance of years. His usefulness on earth will be prolonged indefinitely. Vitamine Z will give us all perpetual existence. All hail to vitamine Z, the real Elixir of Life!"

For a moment I thought the old man had gone stark mad. His shrieking voice, his wild flashing eyes, made me shrink back in a sudden panicky fear.

"Once more," continued the agitated doctor, "I shall employ our little rat friends here in a demonstration of the new vitamine. They have been invaluable in all my experiments, and they will not fail me at the end."

With those words he brought forth from one of the cages and placed on the laboratory table an old rat that appeared to be in the very last stages of senile decrepitude. Its head was drooped, its half-closed eyes evinced a haunting fear, its hair was shaggy and dull. It could barely totter, and after a few feeble steps it collapsed in a heap and lay panting.

"In age," explained the doctor, in a somewhat modified tone, "this animal corresponds to a man of about eighty. As you can plainly observe, it is in a pretty sorry state—in almost as pitiful a condition," he added with a dry smile, "as my own."

"Here is a vial of my vitamine Z. Watch the procedure. It is the same as I have employed for you previously in my tests. See—two drops in the hypodermic needle—there!—the operation is over—the animal's blood stream will do the rest!"

The doctor's trembling fingers worked with lightning speed as he explained. Then he stepped back to regard the result. Having been a witness at all the other thrilling experiments, I was prepared for absolutely anything.

In almost a flash the old rat struggled to its feet. Its head was held high, and it seemed to take a lively interest in the world about it. Its bodily carriage became erect, and its legs lost their tremblings. Even its lusterless coat began to grow smooth and shiny. Its entire manner suddenly became keen and aggressive. I am certain that, if there had been a cat present in the laboratory, the rejuvenated rat would have done battle with her with ferocious abandon.

Dr. Beardsley hastily seized the transformed animal and thrust it back into its cage, where it fell to struggling noisily with the other inmates.

Then he turned to me with a beaming smile of victory. His haggard face, seared with the lines of endless labor and anxious ordeals became fairly radiant in his supreme enthusiasm.

"There you have the essential nucleus—the vital heart of all my laborious work," he croaked hoarsely.

"Vitamine Z will eliminate from this earth all disease, all suffering, all the infirmities of old age. In fact, there can be no old age, for, with the wiping out of all the contributing pathological and organic conditions that go to make up senility, a human being will never grow old.

"And now we come to the supreme test of all, and with that test completed, you are at liberty to divulge my great discovery to the waiting world.

"I!—I myself am now the subject of the experiment!" The old scientist beat his sunken breast with a gnarled fist, as his voice pierced my very innermost consciousness like a fiery lance.

"Long have I waited and toiled and hoped, and the moment has at last arrived. I have played all that I possess—my health—my very life, and now I am prepared to collect my well-earned winning in this greatest of all gambles."

I had never seen old Dr. Beardsley so wrought up in all my acquaintance with him. I could tell from the unnatural flush in his hitherto colorless countenance, his rapid breathing, and the inordinate flash in the eyes, that were customarily weak and lacking in lustre, that there was a terrific upheaval taking place in this tottering frame. The extreme nervous excitement of this dramatic occasion was certainly doing the enfeebled man no good.

He still clutched in his boney fingers the tiny vial containing the precious fluid that he had used to rejuvenate the senile rat. He raised it tremblingly to his lips—and then it happened!

A flash of extreme anguish crossed his face. His features became distorted as if by an unbearable pain. His piercing eyes turned glassy. A soul-chilling gurgle escaped his half open lips. His fingers tore convulsively at his throat.

As his knees sagged and his body swayed, I sprang toward him just in time to catch him as he collapsed in a heap. The tube of vitamine Z crashed to the floor, and the life-giving substance was scattered in all directions.

VERY little more remains to be said about the unfortunate tragedy. Heart failure was the verdict which was handed down by the county medical examiner after a brief investigation of the sudden death of Dr. Beardsley. In the excitement that attended the dramatic incident, I forgot completely about vitamine Z. Even if I had had enough presence of mind to try to salvage some of it from the floor, I probably would have been unsuccessful. The stuff proved to be of such high volatility that not a trace was left when I got around to a minute study of the scene, so that all hopes for a possible chemical analysis appear to be shattered.

I took the liberty of making a careful inspection of the doctor's effects, his tubes, bottles and containers, as well as his personal research notes and writings, but to no avail. An expert analyst reported that all of the liquids which I found in the scientist's laboratory were nothing more than ordinary chemical reagents or solutions, the nature of which were common knowledge to all experimenters.

His copious notes contained not a single clue that would reveal, even to the slightest degree, the methods which he employed to isolate his wonderful vitamines. If it were not for the tangible evidences of the revitalized animals in his laboratory cages, and the groups of hopeless invalids restored to complete health at the hospital, I should consider the entire matter a weird dream.

The chapter appears to be closed. Scientists are still nibbling patiently in the field of nutritional research. They know their five vitamines by their effects on the body and by their presence in certain foods. But the vast empire that Dr. Beardsley opened by his astonishing discoveries lies buried again in ignorance and obscurity. Perhaps some day another genius will arise, another phenomenal experimenter with the uncanny ability of that great man.

Then it may be that he will rediscover the key to the secret of the vitamines, and will present to a stricken humanity the fundamental facts which will spell for it salvation.

THE END

The Radio Robbery

By Capt. S. P. Meek, U. S.A.

(*Continued from page* 1055)

to a spectroscopic test. The copper lines were there all right, but they were somewhat distorted and I felt sure that I was on the right track."

"But why should a man want to destroy gold after he had made it?" asked the District Attorney.

"He wouldn't unless it were so unstable that it was slowly disintegrating by itself," replied the Doctor. "I suspect that it was. Am I right, Wallace?"

The prisoner nodded.

"My brother made gold all right from copper, but it soon changed back. We didn't know what to do, so he suggested that I get a position as express messenger and change a shipment of true gold with our false gold. I did so. He knew that his gold would start to go to copper in a short time and in order to remove any traces, he set his apparatus up near the bank and kept it going all night."

"What sort of an apparatus was it?" asked the Doctor.

"I don't know the details, but it generated an exceedingly short wave that traveled like a radio wave except that he could control the direction. It was made from an electric spark. He thought that he had directed the waves from the spark straight up, but they must have come down again. The short wave he did control. It wouldn't affect real gold, but it broke down our false gold rapidly."

"That was the way I had it figured out," replied the Doctor. "That was why I had that story put in the paper. I thought that when Dr. Wallace saw it, that he would start his machine again and I sent to Camp Vail for a radio locator truck to trace its location down. The rest of it you know."

"But that doesn't get the gold back," remarked Mr. Fleckner.

"I think that I can take care of that," said the Doctor. "Frank Wallace here is an accomplice all right, but he was not the brains of the steal and I fancy he is thoroughly sick of the whole affair. I am sure that he had no hand in the death of Barnett."

"I certainly hadn't," broke in Wallace, "and my brother never intended anything of the sort. He was not a murderer. He was all broken up when he heard of it. Barnett must have been smoking or else he lighted a match or something like that."

"Do you know where the gold is?"

"Yes, I do."

"Mr. Fleckner," said the Doctor, "in case Mr. Wallace would agree to lead you to the gold and you found it intact, how would you look at the matter? Would you not feel rather disinclined to press a prosecution?"

The president considered the matter in silence for a few moments.

"I think that I would," he replied at length.

"I'll be glad to tell you where it is anyway," exclaimed Wallace. "I don't ever want to see it again."

"Well," remarked the District Attorney, "I guess that closes the case. I wouldn't dare to go to trial with a yarn like that anyway, I'd be laughed out of court. Mr. Hunter, you are released from arrest. Let me be the first to congratulate you on your clearance from the charges that threatened you."

"It's too bad that Miss Moulton turned you down, Hunter," said Carnes with a twinkle in his eye.

"Turned me down?" asked Hunter with a blank stare.

"Why, I didn't!" exclaimed Alice Moulton indignantly.

"My mistake," remarked Carnes with a grin. "I thought that she agreed to love me forever if I cleared you."

"I did, but you didn't clear him," laughed Alice in relief. "I think that if I love anyone, it ought to be Doctor Bird."

"I am afraid that Doctor Bird would be more pleased at that than his wife would be," replied Carnes. "In point of fact, I'd have to relinquish my claims to your affections, even if you offered them. I am afraid that Mrs. Carnes and both of the children would object."

THE END

Beyond *the* Green

IN the concluding chapters of the sequel to "Into the Green Prism" Mr. Verrill continues the charming thread of his story of the Manabi's village. There is no greater mystery in the world than that afforded by the wonderful ruins found in South America, and this subject is treated by the author in an extremely interesting and luminous manner, as only this well-known author and scientist is capable of doing, for ethnology and archæology are his special branches of science. We doubt whether any questions of science which occurred to our readers in the first story were left unanswered in this sequel—at least, not those questions which were sent to us.

Illustrated by MOREY

WHAT BEFORE

DON ALFEO, scientist and friend of Ramon, is much perturbed over the ultimate destiny of his friend Ramon, who had used the manabinite prism to transfer himself to the minute Manabi village. After searching diligently for a while, he accidentally learns that an eminent collector of archæological material has left him some mineralogical specimens, among which is a fairly good sized slab of manabinite. A scientist of Europe helps to make the prism and Don Alfeo sets out with an expedition to the spot where he and his friend first saw the Manabi village. He finally locates the exact spot, and just as he sees the village and the princess there is a crash and Ramon materializes before him, apparently from nowhere. When Alfeo becomes convinced that Ramon has really come from the tiny village and that it is possible, with the aid of tiny prisms in that village, to go back and forth at will, he accepts Ramon's invitation to return with him to the Manabi village—which they do. In the Manabi village, Ramon introduces his wife, the Princess Naliche, to his friend. Later he also introduces him to the "Bearded One," or high priest, who explains the reason for the Hebraic features on the face of Wira-Kocha, their god. He also confirms his idea that some time in the dim past these people had accidentally struck the necessary vibratory note in the presence of prismatic manabinite and so reduced the whole village —people and all—to microscopic size.

CHAPTER VIII

The Manabi Prince

RAMON had an even greater surprise for me. As Nusta entered the great hall wherein we were seated, she was accompanied by a lovely young girl, who carried in her arms a mite of humanity, a bright-eyed, chubby, pink boy who kicked and crowed and sucked his thumb, oblivious of the fact that he was a prince of a microscopic land. Ramon grinned at my surprise, and Naliche blushed rosily as I glanced from one to the other, and tickled the royal kiddy's dimpled cheeks.

"What think you, *amigo,* of that?" cried Ramon. Is it not the most wonderful thing you have seen here?"

"Unquestionably," I assured him, adding, with a glance at Naliche, "with the exception of his mother. And"—I finished—"a far greater mystery than any of the handiwork of the ancient races. I congratulate you both. With parents combining such remarkable attributes of physical beauty, intelligence, health, delightful characters and other desirable qualities, the scion of the house of Urquin should mature to be a most remarkable man. But at the present moment—admitting for the sake of argument his good looks—his intellect appears mainly devoted to attempting to swallow his own fist, due, no doubt, to the experimental complex inherited from his father. But, seriously, what is the little fellow's name?"

Ramon and Naliche were laughing merrily. "He have no name to now," replied Naliche, glancing at me with her marvelous eyes. "We have wait to make him the name. My hus—my Ramon, always he say some time perhaps his so dear friend may come, and we wait so maybe he can be here to be the—how you call it, the——"

"Padrino" (godfather), supplied Ramon. "Yes, old man, that's it. I have always felt, *amigo,* you would yet come, and I wanted my dearest, truest friend to be the godfather of our first born. We'll have old Melik christen him in the temple tomorrow morning. But you've got to find a name for him, *amigo*. Naliche and I cannot decide on one."

I chuckled. "I feel honored," I assured them, "but isn't christening a somewhat paradoxical expression to use? Surely your friend Melik is not a Christian priest. And I was not aware that in the—er—faith of your ancestors, Ramon, there were such personages as godfathers."

Ramon grinned, but I don't think Naliche quite understood my meaning, for she glanced with a puzzled, questioning expression from one to the other of us.

"They have godfathers all right," declared Ramon, "but of course I said 'christening' in a purely figurative sense. I should have said——"

"Wira-Kochering," I suggested with a laugh. "But regarding the name. Must it be in Manabi, Spanish or English; or doesn't it matter?"

"He is the some of the Urquin and the some of the Quichua and the little of the Spanish," Naliche reminded me. "And the—the *Padrino*—he is of the Americanos. Maybe"—blushing prettily—"he can the names of all be given."

"Madre de Dios, no!" exclaimed Ramon. "Don't let's burden the poor *chiquito* with a string of names like that. I know what 'tis—I've ten names myself. No, old man, I'm leaving the name to you. Only don't give a name that none of the people here can pronounce."

"Hmm," I muttered. "Let's see. Ah—how would Mara-Choki do?"

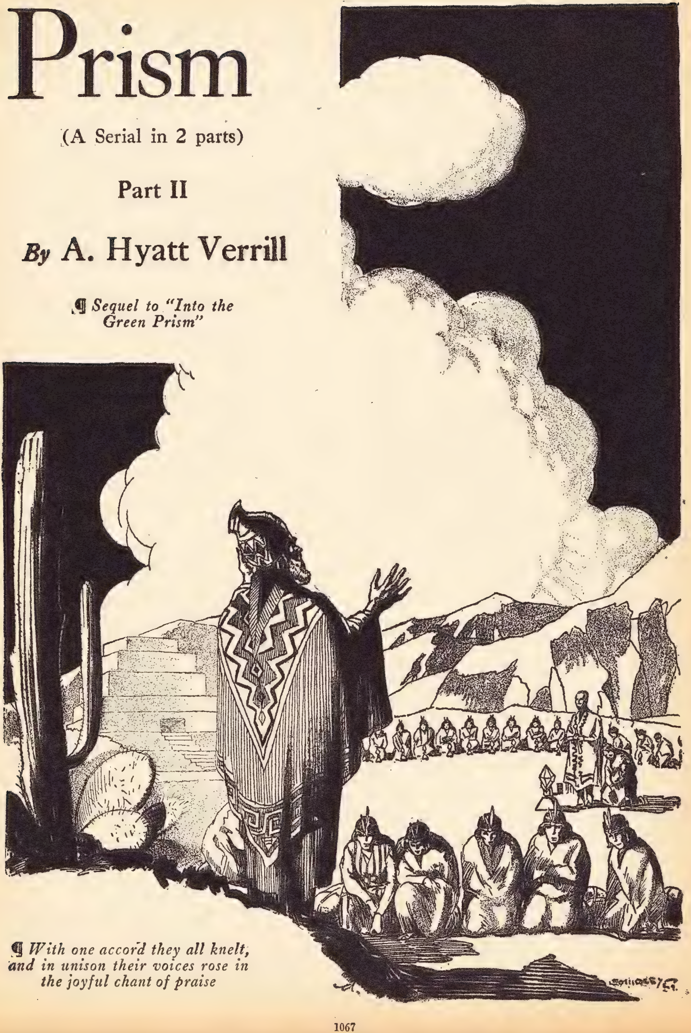
Prism

(A Serial in 2 parts)

Part II

By A. Hyatt Verrill

¶ *Sequel to "Into the Green Prism"*



¶ *With one accord they all knelt, and in unison their voices rose in the joyful chant of praise*

Naliche clapped her hands in delight and her eyes sparkled. "But our dear friend he speaks the Hualla!" she cried. "Oh, my Ramon, why you not told me that I might speak with him so?"

"I didn't know it myself," confessed Ramon.

I grinned. "I cannot say that I speak it," I declared, "but I possess some knowledge of the dialect, and I have noticed that the Urquin tongue is merely a local variation of the ancient mother-tongue of Peru. But how about the name?"

"It is most beautiful," Naliche assured me, now using her native tongue. "Star of Gold!" Ah, is he not that? Our star, the star of Urquin, and his skin as golden as the face of Inti. Oh, my dear friend, I——" With a sudden swift movement she stepped forward, and before I realized her intentions, she kissed my cheek.

A moment later, the priest, Melik, entered. I recognized him instantly as the man I had seen conducting the services in the temple, and I studied his face with interest. He was an elderly man—I should have said about seventy—with large, keen, and kindly eyes; a firm but sensitive mouth; good forehead, and a high-bridged, thin, aquiline nose. A sparse, gray wisp of beard was on his chin, and his white hair fell about his shoulders. Never, had I met him amid other surroundings, would I have taken him for an Indian. He might have been of any race of southern Europe, or an American, and I wondered if the blood in his veins was not largely that of the ancient Wira Kocha, the Bearded One. That he was very fond of both Naliche and Ramon was evident from the smile that crossed his wrinkled face and the light that brightened his eyes as he greeted them. And it was equally obvious that the kiddy—Mara-Choki, rather—was almost as important to him as to his parents. And he expressed delight at the name I had selected for the child, and at the fact that I could—with some difficulty and stumblingly—converse in his own dialect.

"You wouldn't think the old boy was a couple of hundred years old, would you?" muttered Ramon in Spanish, as Melik turned to speak with Naliche.

"What!" I ejaculated. "Nonsense, Ramon. Such tales of extreme age are common among the Ameticab races, but are seldom fact—they merely forget the dates of their birth and keep adding on to their imagined age."

"Not Melik, *amigo*," he assured me. "I've proved to my own satisfaction he's over two hundred and he may be five hundred for all I know."

I laughed outright. "Why don't you say he was here when the reduction of the people took place, or even was contemporary with Wira-Kocha?" I asked.

"Maybe he was," replied Ramon quite seriously. "Nothing would surprise me here." He hesitated. "Guess Naliche's age," he said.

"That," I declared, "is simple. I should say without hesitation that she is between eighteen and twenty. If she were a native of a northern locality I would add perhaps two years more."

Ramon roared until Naliche and Melik gazed at him in surprise, and the infant howled in terror. Then, turning to Naliche, he said something in words too rapid for me to follow, and instantly both she and the priest burst into peals of merriment.

"What's the huge joke?" I demanded.

"Naliche, my adored one, eighteen or twenty!" gasped Ramon, striving to control himself. "Oh, *amigo mio*, that's rich! Why, she's older than I am—yes, *amigo*, older than you, you old fossil. She's nearly forty!"

"The joke," I observed, "is that you imagine for one moment I will believe that statement. I presume you will now assure me that your son yonder is a man of twenty-five."

"But she is," insisted Ramon. "You cannot judge the age of people here by our standards. And every birth for the past—well, at least eight centuries—has been recorded or registered; that is, the births of all members of the aristocracy and priesthood. They are all on file in Melik's sanctum adjoining the temple—recorded on quipos, the knotted cords used for registering events and computations—and I looked up that of Naliche because I couldn't believe it, even when she told me her age."

"Possibly," I suggested, "you have found the land of the Fountain of Youth. Though, if such be the case, I should like you to explain why it is that people die here."

RAMON was now serious once more. "Of course they die," he said. "They're mortal like anyone else. But they live to extreme age. It puzzled me in the beginning, but I discovered the reason."

"If you can elucidate to my satisfaction, and prove your assertion, I may be converted," I informed him. "What *is* the mysterious cause of the Manabis', no, the Urquins', longevity?"

"First let me put a question," he replied. "What are the chief causes for human beings dying at less than one hundred or two hundred years? You, as a scientist and anthropologist, must realize that, judged by biological laws and precedents, human beings should live normally for one hundred and fifty years, more or less—approximately five times the period it requires for them to reach maturity. Yet how many live to that age? And how many ever die of old age?"

"Naturally, diseases cause the majority of deaths," I replied. "Accidents take their toll, and death is hastened, in the case of civilized men, by excesses, lack of care, late hours, and a thousand and one other causes. But in answer to your first question, I would say that tuberculosis, cancer and—well, possibly malaria, are the three most potent factors in destroying human life prematurely; that is, of course, excepting wars, pestilences, floods and—as the insurance companies put it—acts of God."

"Precisely, *amigo*," he agreed. "And if these diseases—if all maladies caused by parasitic or deadly germs could be eliminated, why shouldn't people live to one hundred or more? And why shouldn't they keep their youth into what we call middle age?"

"No reason at all," I admitted. "But no one has yet, and the chances are no one ever will eliminate such diseases."

"No?" Ramon shrugged his shoulders and raised his eyebrows. "In that," he continued, "you are greatly mistaken. Here in Urquin there are no germ or microbe diseases. That is," he hastened to add, "unless you and I have brought them in."

"Nonsense!" I exclaimed.

"Nonsense nothing," he retorted. "Just use your reason, *amigo mio*. Remember that we—all the people here—are, according to your former standards, tiny, ultramicroscopic beings. Then, considering that point, tell me how it would be possible for germs—say of malaria—to live in our veins? Why, *mi amigo*, it would be like tadpoles in the blood of ordinary-sized men."

I smiled. "You quite forget," I reminded him, "that when the Manabis—no, confound it, the Urquins—

were reduced, the germs in their systems would have been reduced also, and that their descendants would still be of reduced size."

"Granted," he retorted. "But you, *amigo,* forget that the most deadly of germs, those of malaria, yellow fever, cholera, plague and others, can be transmitted, propagated only by means of carriers—insects. And that, with no carriers, the breed would soon die out and disappear completely. And that, my friend, is precisely what occurred here. For all I know, the original ancestors of these people may have been entirely free of any injurious germs. But that makes no difference. It happens that no carriers—no fleas, no mosquitoes, no bedbugs, no biting insects are here. You see, the people were in their temple when the calamity occurred, and probably no insects were present. But—"

"How about the dog we reduced?" I asked. "Didn't he bring fleas with him?"

"If you recollect," he reminded me, "we had the cur in my laboratory for a week or more, and as I am, unfortunately, or rather was—very susceptible to fleas, I most thoroughly defleaed him as well as my quarters. I doubt if there was a living flea in the place."

"Hmm," I muttered, "I can understand, in a measure, the freedom from diseases of some sorts here. But there are others—smallpox, measles, tuberculosis, cancer, pneumonia, scores of virulent maladies, that do not require carriers."

"Madre de Dios!" exclaimed Ramon. "Did not you, yourself, assure me that all or nearly all of these were introduced to America by the Europeans? And do you not realize that the Urquins were reduced ages before the first European arrived in America?

"Even so," I argued, for I hated to let him know he had me, "I fail to see how that fact would enable a man to live two hundred years. Or how a girl—er—a woman—as beautiful and as youthful as your most lovely wife, can be forty years of age."

"That," admitted Ramon, "is something I do not know. Perhaps it is due to the normal, healthy life they lead. They do not smoke, nor chew coca, nor drink alcohol. They sleep twelve hours out of twenty-four; they live an out-of-doors life, and they have no worries, no problems, no troubles. Urquin, *amigo,* is as near to Utopia as can be found on this earth."

"I'm beginning to think so myself," I assured him. "But tell me, what was it you discovered in regard to the secret of the Cyclopean architecture? I am more interested in archeological matters than in eugenics or perpetual youth, you know."

"The same old Don Alfeo," laughed Ramon. "A slave to your pet science. But I can't blame you; you haven't the same interests here as I have."

"If," I said, "I could find a—er—companionable young girl, as beautiful—no, that is imposible; but, let us say, quite reasonably lovely, and, well, possibly not more than sixty or seventy years of age—and provided she were not adversely influenced by personal appearances, I might—well, I might consider acquiring much the same interests as you possess here."

Ramon laughed merrily. "Very possibly you may find that that is just what will happen," he declared. "Old Melik has a really charming daughter, though I doubt if she is much over fifty, and having had ample opportunity of judging what a most excellent husband I have proved, I imagine that Mosock Nina might be tempted to try the experiment of acquiring a mate from the outside world. You'll have an opportunity to judge of the—er—girl of fifty summers this evening. Naliche is a born matchmaker, and Melik's daughter will dine with us."

I smiled. "Hmm, Mosock Nina," I murmured. "That, I believe, if freely translated, means 'New fires.' A somewhat ominous name for a young lady who is seeking a husband. Ah well, possibly she *may* kindle new fires in an old bachelor, after all. But, come, let's have your revelations regarding the prehistoric stone-cutting. I'm impatient to hear about your discoveries. And, by the way, just how *did* you discover it? I have seen no stonework of any size—certainly nothing of the cyclopean type, here."

"Had it from old—from your prospective father-in-law," he replied with a sly nudge in my ribs. "He had it from his father and so on—handed down like all the history here, from father to son among the priests. And I feel certain it's the truth, for it answers all the requirements of the case. But we'll have to wait until later, old man. Here comes your future bride."

CHAPTER IX

Woman, the Enigma

POSSIBLY, under the circumstances, it may be both ungallant and inadvisable to admit it, but this being a true and unvarnished narrative of actual events I must not evade facts. In short, I must admit that Mosock Nina did not, at first glance, stir any of the "new fires" her name implied. But of course, with Naliche for comparison, no woman would have appeared unusually beautiful. Also, very possibly—though quite unconsciously—I was influenced by having—also unconsciously, surrounded myself with a defensive armor, if I may use the simile, of determination not to fall a victim to any woman's wiles or appearances. Mosock Nina was, however, a really beautiful woman. Although Ramon had declared she was at least fifty, I could not, even after his lucid and quite reasonable explanation, believe she was more than twenty-five or six. Her skin was of much the same shade as Naliche's, a soft, warm, golden hue, which was not surprising, as it developed that the two women were cousins. Her hair was very luxuriant and soft, and although black, it showed brown or reddish, even golden, tints in the light. Her features were those of her father, softened and refined by youth and femininity; her eyes were large, soft and expressive, and her figure was superb. In any other place and amid any other surroundings I should have felt—as I afterwards felt—that she was a most gloriously lovely woman, and I soon found that she was as merry, as companionable and as delightful as any man might wish. And she quite obviously did *not* judge by appearances only, for she appeared quite—I might say decidedly—interested in me. In fact, to cut a long story short, before the evening, or I might say afternoon, for darkness in Urqui meant bedtime, I found, quite to my surprise and somewhat to my dismay, that I had fallen deeply in love with Mosock Nina and, if I could judge of the matter, that my feelings were reciprocated. I do not think it essential to my narrative to dwell upon the subsequent events nor to describe matters that, I feel, hold no interest for any others, and which, to my mind, were strictly of a private nature.

I must confess, however, that, during the ensuing weeks, I found that my interest in archeology became, much to my surprise, a matter of secondary consideration, and I quite agreed with that anonymous personage who advised that, if business interfered with pleasure, one should give up business. Nevertheless, I did not entirely neglect my research work, and even dragged my mind from thoughts of Mosock Nina and kept Ramon to his promise to tell me of his discovery regarding the pre-Incan cyclopean architecture. As some of my readers may not be familiar with this subject, a few words of explanation may not be amiss.

Throughout the interior of Peru and Bolivia are the remains of immense cities, huge forts, massive walls and great buildings, all constructed of stones of such stupendous size that they appear as if erected by a race of giants. Often these stones weigh from thirty to two hundred tons and even more, and all are fitted together with such incredible nicety and precision—even where there are as many as twenty angles—that although no mortar nor cement was used, a knife blade cannot be inserted between them today.

That they were erected by a highly civilized and cultured people, who lived and vanished ages before the Incan civilization, is evident, for even the Incans had no traditions or history of their origin, but attributed them to the gods. And for years, since archeologists first studied the Peruvian remains, they have proved a puzzle and an unsolved mystery to all scientists. No one ever has been able to offer a plausible theory to explain how they were cut and fitted, how they were transported from the distant quarries, or by what means they were lifted —without the aid of modern machinery—and placed in position.

Hence, Ramon's casual statement that he had solved the mystery of the Cyclopean architecture, as it is called, and his assurance that he knew the secret so long unsolved, filled me with the most intense interest, an interest that was not entirely submerged in my sudden and wholly unexpected interest in Mosock Nina. And I listened to Ramon's words when at last I pinned him down to his promise and he told me of his truly amazing and altogether incredible solution of the mystery.

"You remember, *amigo,*" he said, "that I once declared —when we were in Manabi—that I had a feeling the minute gold beads and the titanic stones had some connection?"

I nodded assent. "But that is ridiculous," I declared. "There are no such immense stones in the neighborhood of Manabi."

"Don't interrupt, *amigo mio,*" he smiled. "And don't declare anything ridiculous. Judged from the point of view of your fellow scientists, your own status at the present time—if described to them—would be dubbed impossible and ridiculous. Nothing, *amigo,* is impossible nor ridiculous in this world unless it controverts the laws of Nature. And as none of us know what these laws are, we are wholly incompetent to judge of what is and what is not impossible. Anyhow, as I was about to say, I was not so far off in my 'hunch,' as you might call it. There is not, I may assure you in order to set your mind at rest, any real connection between the microscopic gold beads which—thank God—were the indirect means of my present happiness, and the Cyclopean stonework. But there *is* a very definite connection between the manner in which the beads were made and the stones were cut and placed. It——"

Again I interrupted him. "You mean the stones were permanently enlarged after cutting, I suppose."

"No, on the contrary, just the reverse," he replied. "The stones at Cuzco and elsewhere are today their original size or very near it. They were permanently, physically magnified, cut and fitted, and then reduced to their normal dimensions."

I snorted. "That's going too far, Ramon," I objected. "In the first place, you proved conclusively that minerals —nothing not an animal substance—could not be reduced by Manabinite prisms. Take your fiddle, my clothes, the dog's plate. You tried and failed. And——"

"Hold on!" he exclaimed. "Like all scientists, you are jumping at conclusions. I was not, I confess, able to reduce objects not composed of animal matter. But that does not prove that, had I enlarged such objects, I might not have found that the prism would reduce them to their original or normal size. And how do you or I know that, under certain conditions or when subjected to some peculiar vibratory stimulant, Manabinite might not be capable of reducing any material to the same extent that the prisms we employed reduced animal matter?"

"Hmm," I muttered. "I see your point. Possibly you are right. But even so—even if the ancients increased the size of the stones to any extent, I fail to see why it would facilitate cutting or fitting them. On the contrary, I should declare without the least hesitation that it would render the task even more difficult. No human beings could move one of those two-hundred-ton blocks if it were three or four times as large. And to cut and fit a large stone is far more difficult than to do the same work on a small stone. No, no, Ramon, your explanation so far is not logical."

HE smiled condescendingly. "Your reasoning is entirely wrong," he declared. "First let me ask you a few questions. What *is* weight? Why *are* some substances lighter than others? Why, for example, is sandstone lighter than flint? Why is marble softer than granite?"

"Why, why," I stammered, suddenly realizing it was a rather difficult matter to give a wholly satisfactory reply. "Weight, my dear boy, is a—well, a—a term used to express the comparative—well, weights of various substances. It is—why, the comparative pull of gravitation upon various materials and bodies. It——"

"Wait a bit," he interrupted. "Accepting your somewhat lame explanation of weight in the abstract, how, may I ask, is weight established?"

"Why, by specific gravity," I replied. "By——"

"And," interrupted Ramon, "why does one object have a greater specific gravity than another? Why does one material float on water while another sinks?"

"Any schoolboy could answer that," I retorted. "The object that floats, if pushed under, displaces a volume of water exceeding its own weight. It——"

"And I might state that your answer is no more specific than the gravity you are prating about," he declared, interrupting my sentence. "You go around and around in circles. You get no nearer the truth. The fact is that weight, as you call it, is all bunk. It's all a matter of relativity, and its relativity depends entirely upon the degree of space—I say space in a broadly comparative term only, for of course there is no such thing as space—between the atoms of which the material is composed. If the atoms, electrons or whatever you please to call the objects that form all substances, are pressed closely together, we have a dense, heavy material. If they are widely separated we have a porous, light material.

"And when I say dense or porous I mean dense or porous and not hard or soft. As a rule, I admit, the dense material is far harder than the porous material, but there are exceptions. Gold and platinum are very dense, yet they are soft, whereas certain forms of glass and certain minerals may be porous, light and exceedingly hard. But, invariably, the dense substances are, as you would express it, heavy, and the porous substances are comparatively light. You know that yourself. The porous woods are light, the dense woods heavy and, in cases where the usual rule is borne out, the dense object is the harder. But, even in cases where the dense object is comparatively soft—as in the case of lead, tin, copper, gold, platinum, etc., the material would be far softer if it were rendered more porous. Lead or gold, for example, if as porous as—well, say wood—would be as soft or softer than putty. In fact, I doubt if the adhesion of the atoms would be sufficient to hold them together. They would probably disinegrate completely. But that, *amigo,* has no real bearing on my discovery. The pith of the matter is this: if a normally hard, dense substance could be so altered that the atoms composing it were separated, it would become a porous and soft substance, would it not?"

"I should not care to express a definite opinion in regard to that," I evaded. "But assuming it to be a fact, what of it?"

"Everything!" he retorted. "You can break soft sandstone with your fingers, but you can make no impression upon granite without a steel tool. Why? Because in one case you have a porous rock with loose structure, while in the other case it is a dense rock with closely pressed together structure. But if by some means you could separate the molecules of the granite to the same extent that those of the sandstone are separated, you could crumble the granite as readily as you can the sandstone. Do you admit that?"

I nodded assent, but I was not sure he was right.

"Fine, *amigo!*" he ejaculated. "For once you cannot raise a valid or an invalid objection based on what you call 'science.' But to proceed. That, my friend, was precisely what the builders of cyclopean architecture did. They expanded the stones of hard, dense, refractory rock until they were porous, soft, and could be worked with the greatest ease. Then they reduced them to normal size. That was all."

"But," I cried, "you completely forget that if the andesite or arsenite or granite was enlarged until your hypothetical cutting became possible, the stones would be too cumbersome, far too heavy to handle."

Ramon burst into laughter. "Back to the old schoolboy ideas of weight," he exclaimed. "Haven't you just admitted that weight was basically a matter of comparison, of the specific gravity, as you call it? Haven't you admitted that if a substance floated on water it was light; if it sunk it was heavy; that if it was porous it would float; if dense it would sink? In that case, *amigo,* how could the same block of andesite, even if enlarged to ten times its size, one hundred, one thousand times its size, be any heavier than the original block."

"Good Lord!" I gasped. "I'm beginning to see. Concisely put, you mean that the enlarged block would contain no more material—no more atoms of material, than the original? By heavens, Ramon, I never thought of that. I do believe you may be right. But—but why, if you are, if an enlarged mass of stone would be light in direct relation to its size—in other words, if its displacement were greater than its weight of water, it would actually float. By Jove, Ramon, that might solve another mystery: how the Tiahuanacans transported their stupendous stones across Lake Titicaca. Why, man alive, if they were first enlarged as you suggest, they could have been rafted across as easily as logs."

Ramon was grinning. "Of course they could and they were," he assured me. "And if you don't believe it I can prove it to you. But to go on with my tale of discoveries. I——"

"Wait. Hold on!" I cried, as a new thought entered my mind. "Your theory can't be right. It's a poor rule that doesn't work both ways. If a stone enlarged would weigh less, then a stone, a body, anything reduced would weigh more. And if enlarging the stone renders it more porous, then reducing it would render it more dense. In that case your body and mine would be as dense, as hard as diamond, and we would weigh thousands of pounds each."

Ramon fairly choked with laughter at my serious expression as—quite without realizing it—I pinched myself as if testing the density and hardness of my flesh.

"My dear, dear old friend," he said, "haven't I just been at some pains to explain that the enlarged stone is no lighter than in its original size. It weighs precisely the same; but as it has a greater cubic volume, its weight, as expressed in your units based on specific gravity, appears less. If water were to be enlarged to the same extent, you would find the stone sank as quickly as it did in its normal state in normal water, and if a steel tool were enlarged in the same ratio it would be as difficult to cut the stone with it as it was when in its original form. It's all a matter of relativity, my friend. The stone is enlarged out of all proportion to its surroundings; hence the results. The same holds true in the matter of reduction. With one exception. The same laws do *not* hold when it comes to the action of manabinite on animal matter. Why, I do not know. It is one of the many phenomena connected with the crystal. Possibly the atoms that form animal matter are of a different character from those of mineral and other substances and hence are reduced to the same extent as the objects they form, or possibly manabinite does not affect them the same way. All I know is that it is so. But, as a matter of fact, I believe we weigh precisely what we weighed before we were reduced. I——"

It was my turn to laugh, and I did. "The idea, even the thought of a man of normal weight and only some thousandths of a millimeter in height, is," I declared, "highly amusing, Ramon. And I suppose you claim that Mosock Nina tops the scales at some one hundred and ten pounds, more or less. I——"

"If we had scales in the same proportion to ourselves as those to which you are accustomed are to ordinary humans, I have no doubt you would find you weigh around one hundred and seventy pounds, and that your fiancée can boast of some one hundred and twenty pounds of feminine loveliness. In other words, *mi amigo,* your specific gravity in the water of Urquin would be precisely the same as in the waters of New York if you were of your normal dimensions."

"Bosh!" I cried. "Maybe you're all right and maybe not. It's all too dashed complicated, too theoretical, too involved and too puzzling to bother my head over it. I'll occupy my mind with something that is neither complicated nor theoretical and much pleasanter. If——"

"Meaning Mosock Nina, I presume," he interrupted with a grin. "In which case," he added, "let me warn you that you will find by experience that nothing you have yet heard or seen can possibly equal the complications of a woman's mind, and that nothing is so puzzling as a woman."

I gave him a withering look and hurried off to find Mosock Nina.

CHAPTER X

Ramon Proves His Point

IT was not until some time later, after thinking over Ramon's statements, that I thought I found some flaws in his arguments. If the stones had been enlarged as he claimed, why, I reasoned, would their atoms not be correspondingly enlarged? And if they were, then the enlarged stone would be as hard and dense as it was in its original form. It was quite obvious, too, that his statement that in Urquin water we or I would have the same specific gravity as I formerly had in comparison to normal water, must be wrong. He admitted, and I knew, that in the case of animal matter the atoms composing it were proportionately reduced, and he had explained that the molecules of water, falling as rain in Urquin, were incalculably small in proportion to ordinary molecules. Yet the water in Urquin had not been reduced, and how then could it bear the same relation to me, or to him, that ordinary water would bear to ordinary men?

The whole thing puzzled me tremendously, and I lay awake the greater part of the night trying to coördinate the facts in my brain and to find some logical explanation of it all. But when, in the morning, I mentioned my thoughts and my inability to grasp or explain the seemingly paradoxical and wholly contradictory matters, he merely laughed and declared that it was a pure waste of time and nerves to bother trying to straighten it out. That we would have to accept facts as they were, and it was no more use striving to understand the inscrutable ways of Nature than endeavoring to understand the equally incomprehensible ways of women. A statement, I reflected, that hinted that his path of love and of marital bliss was not wholly free from the ruts and thorns of others. But I was not to be put off so readily. I possess a rather prominent bump of stubbornness when it comes to baldly accepting theories without *prima facie* evidence of their truth, and I am something of a fiend on the subject of demonstrations. So I very promptly informed Ramon that while he might be willing to accept things as they were, or rather as they appeared to be, and though he might feel convinced that his explanation of the mystery of the cyclopean architecture was the correct one, I had my doubts, and was not at all ready to accept his explanations.

"You always were a most skeptical chap, *amigo*," he informed me, "but there's nothing I enjoy more than convincing a person against his will. I remarked yesterday that I would prove my theory true—or at least prove my contention in regard to the stones, and I'll keep my promise. I do not know precisely what process the pre-Incas used, and Melik, who gave me the facts about the stones, couldn't explain very clearly. But, working along my own lines, and with what he had divulged to guide me, I managed to invent a process that works, at least to a certain extent, and I'll give you a demonstration."

"Fine!" I exclaimed. "I may be skeptical, but once I see a thing with my own eyes, I am willing to be convinced of anything."

"So I observe," he remarked with a leer. "You were quite convinced of Mosock Nina, once you had seen her with your own eyes. And——"

"She *is* most convincing," I interrupted. "And if you can show me anything in support of your theory that is one-half as convincing as my future wife, I am willing to accept all your seemingly preposterous explanations."

"You'll find a woman is a darned lot more convincing after marriage than before," he remarked dryly, "but come on. There is no time like the present, you know."

Rather to my surprise, for he had not mentioned it, I found that Ramon had quite a complete laboratory in one wing of the big rambling palace. Of course he lacked many instruments and appliances that, ordinarily, are considered essential, but his marvelous inventive genius, the skill and patience of the Urquins and his own mechanical skill had served to provide makeshifts and substitutes that were both serviceable and clever. Very evidently his experiments had been mainly in the lines of physics and optics—his own specialties—and equally obviously he had devoted most of his time to experiments with manabinite, for partly finished, broken and discarded lenses, prisms and fragments of the mineral were scattered about in profusion. But of course this was to have been expected for, as he told me, he had worked assiduously and almost constantly to produce prisms capable of enlarging himself to normal size whenever I might appear. And as I glanced about at his instruments and his store of the green crystal, it occurred to me that, had he so desired, he might have enlarged not only himself but Naliche and all the people at the same time, and I wondered why he had not done so. But when I put the question to him, he seemed surprised.

"Why should I?" he demanded. "Would we—they—be any better off? No, *amigo*, on the contrary, they would be far worse off. What would we gain? We are happy, contented, safe here. Why should I transfer myself and my adopted people to a world of which they know nothing? To a status in which they would be lost? And why should I sacrifice them to the dangers, the discontent, the unhappiness of life and civilization as we knew it? And, *amigo mio*, think of the effects of disease? Through generations of freedom from all microbe diseases these people have lost the power to resist germs, and the most ordinary ills—measles, colds, whooping cough or any others might prove fatal and utterly destroy them."

"But," I objected. "There is no future, no progress here. And at any instant the village and all of you may be totally destroyed. A flood, an earthquake, a shovelful of sand, some burrowing animal or insect might wipe out Urquin and every one of its inhabitants. And——"

"As I once said before, the same is equally true of existence in the world of everyday men and women," he interrupted. "And we do not face the dangers of one thousand-and-one things that other people have to guard against. As for progress and the future, as you call them—uttter rot! What *is* progress? Merely another name for discontent; making life and the world more and more complicated, more and more dangerous, more and more unhappy. Are people any better off, any happier with motor-cars than they were with horses and carriages? Are they healthier or more at peace when able to travel around the earth in a month than when it required twice that time to cross the Atlantic? Do airplanes bring any real advantages to mankind? Are you—the people of today—any happier, any more contented, any better off, as far as peace of mind and body are concerned, than were our ancestors fifty, one hundred years ago? I say no. *Por Dios,* we are far worse off! The more people have and the more they know, the more they want and demand. It is a vicious circle. The laborer demands more; to get more he forces his employer to pay him more; his employer raises the price of necessities and luxuries to enable him to make his profit and yet pay his help more, and as a result the artisan is as badly off as ever. But he is caught in the mesh of what you call 'progress' and goes on, demanding and receiving more, paying out equally more, getting more and more discontented, more sour, more unhappy. *Madre de Dios,* where will it all end, this thing called progress? And the worst of it is, it gets nobody anywhere. Boiled down to its basic elements, all man gets out of life is his food, his shelter, protection from the elements and amusements that do not amuse. He——"

"Hold on, Ramon," I ejaculated. "How about knowledge, spiritual life, health, longevity, comforts?"

HE laughed sarcastically. "Of what use is your so-called knowledge if it cannot make life brighter or happier?" he demanded. "And as for life, I'll stake my life that there is truer, purer, more enduring love right here in Urquin or among primitive savages, than you can find in New York, London, Paris or anywhere in your progressive civilizations. Spiritual life! *Santisima Madre, amigo,* you amuse me! What spiritual life have your progressives that we in Urquin lack? Nothing. We have our faith, our religion, our gods, and we believe in an after life, in souls, in a Creator and we live according to the tenets of our religion, which is more than you can say of your civilized people.

"Comforts? Pah! Is a new York hotel or steam-heated flat any more comfortable than this mud palace? Is the indigestible menu of a Parisian restaurant any more delicious than the food we have here? Are the ridiculous costumes of your progressive men and women as sensible and comfortable as our clothes? And as for health and longevity—*Caramba, Don Alfeo,* where do you find men in civilized progressive lands still in their prime of life at the age of two hundred years? And where will you find beautiful girl-like ladies of fifty? And do you notice a hospital here? Do you see doctors' shingles on the houses? Have you seen an ill, maimed, lame, unhealthy, weak or ailing person in Urquin? No, no, a thousand times no, *mi amigo!* We are immeasurably better off, happier, more contented, healthier than we could be if in the same world as your progressive civilized people. But enough of this. Let me prove my statements about the stones."

As he spoke, he adjusted a number of crude yet delicate instruments on a table or stand, selected several crystals, arranged these with great care, and then picked up a small slab or fragment of stone and handed it to me.

"As you will see," he began in the tone he once used in the lecture-room, "you hold a fragment of arsenopyrite rock or mispickel. I would ask that you examine it with your pocket-lens and also that you test its hardness by means of this bronze too." He handed me a chisel-like instrument. "Then kindly drop the stone in this vessel of water. Ah, as you see, it sinks to the bottom instantly. Also, you find the bronze too makes no impression upon the mineral, and your examination by your lens has revealed a stone of fine, dense structure. Do you agree to all this?"

I laughed. "I am not, Ramon, a freshman in a classroom," I reminded him. "Neither the lens, the chisel nor the water were necessary to convince me that it *is* arsenopyrite, that a bronze instrument will *not* cut it, and that it *will sink.* However——"

He grinned. "But I only wanted to be sure that no question arose in your mind. Now," he continued, as he took the stone and placed it on a second stand between two of his instruments, "watch what happens."

As he spoke, he picked up a contrivance something like the old "bull roarers" of my boyhood days; a stick or rod to which a string or cord bearing a weight, was attached, and whirled it rapidly about. A low buzzling hum resulted that increased in volume as he swung the thing faster and faster, until the sound was deafening and the air vibrated in my ears. It was more like the sound of an airplane propeller than anything else but with a sharper, more highly pitched note that reminded me of the song of gigantic cicada, and that seemed to go through and through me like an electrical discharge. For an instant the hum remained the same. Then, suddenly, as it soared in a high crescendo, and I gasped and started back as there was a crackling explosive detonation from where the stone had been placed. A shower of brilliant sparks seemed to issue from the mineral, and it was enveloped in a smoke-like vapor. It was precisely as if a bunch of good-sized firecrackers had been set off on the stone.

Instantly Ramon dropped the whirling stick, the hum ceased, and he turned to me grinning. "Nice fireworks," he remarked. "And made without fire at that. But just have a look at the stone, *amigo.*"

I could scarcely believe my eyes. Where the little slab had been—a piece of stone perhaps an inch square, rested an immense block of stone twice as high as my head, reaching across the entire width of the room and fully six feet in thickness. It was the most incredible, the most uncannily mysterious happening I had ever seen.

But my amazement had only commenced. I stepped forward and examined the mass of stone, and uttered an ejaculation of inexpressible wonder. Instead of a dense, fine-grained mineral, I was looking upon what was apparently coarse schist or sandstone. Ramon, grinning like a Cheshire cat, handed me the bronze chisel. As if in a dream I grasped it and chipped with it at the stone. At the first blow a large flake flew off, and I found no difficulty in scoring and cutting the stone even with the soft metal tool.

"Now, *amigo mio,* do you believe?" exclaimed Ramon.

I sank weakly upon a bench, mopped my forehead and stared at the stone as if expecting it to take wings and vanish. "Good Lord!" I managed to exclaim at last. "It's a fact, Ramon. You're right. I take back all I said. But——"

"You were about to say 'but can I restore the stone to its original status?'" he broke in, as if reading my thoughts. "Yes, *amigo,* I can and I will."

Again he adjusted his instruments, made some alterations, and once more swung the humming device. This time, however, the note—whether caused by the motion or by some change in it—was much heavier, duller; a sort of booming, like that made by the ruffed grouse when "drumming." And there was no fireworks display. Instead, there was a single, rending crash, like that of a heavy object dropped upon old bottles, and before my incredulous eyes I actually *saw* the great stone shrink, writhe and dwindle, until, with the final note of Ramon's instrument, it remained stationary—the tiny fragment of what was now hard stone.

"And now, *amigo,* to prove there is no trickery and that all is as I said, will you look carefully at the bit of mineral? You will find, I think, the marks you made with the chisel are quite distinct upon it."

He was right. There were the scratches, the cuts, the spot where I had flaked off a bit of stone. I was speechless. There was nothing I could say. I could not find words to adequately express my indescribable amazement at his seemingly supernatural and impossible feat.

CHAPTER XI

Melik Makes a Decision

IT was not long after Ramon's astounding demonstration that I was married to Mosock Nina. As I belonged to no particular denomination, and have ever been liberal and broad-minded in religious matters, I felt that a wedding consecrated by Melik in the temple was quite as orthodox as any other. It was a really imposing ceremony, and I fear that—if I tell the truth—I must confess that my mind strayed more than once from the marriage service in its relation to myself and my bride, to dwell upon the fascinating and valuable scientific interests it presented. And somehow it seemed exceedingly dream-like and unreal, not to say incongruous, for me, a staid twentieth-century American scientist, to be standing in an ancient pre-Incan temple before the image of the sun-god, and listening to the aged priest chanting the words of the ancient Hualla marriage ceremony, while all about stood the reverent people, who might well have stepped from the days of the long-forgotten past. And as Melik raised his arms and called upon the sun-god to bestow his blessings upon us, and I cast a glance at the motionless, sphinx-like figure of Wira Kocha in his niche, the calm, benign face seemed to smile and I could have sworn that the mummy actually winked.

Of course, during all this time, ever since I had been in Urquin, in fact, I had been constantly making new and most noteworthy discoveries. With Ramon's help I had invented and made a notebook, using the thin, membranous tissues of a most remarkable animal for the parchment pages, and on this I had recorded brief accounts of my discoveries. And in this connection I must not forget to mention, that in Urquin all forms of both animal and plant life were wholly different from anything I had ever seen.

I am no zoologist and know very little of botany, and hence cannot classify nor adequately and scientifically describe the strange beasts and plants of the place. In fact, I am not at all sure whether all the creatures belonged to the same order, or whether several orders were represented; but all were insect-like in appearance, although many were in some respects like crustaceans. And, as I believe that true insects are distinguished in one respect from the crustaceans by having six legs, I am convinced that, if they were insects, they were entirely distinct from any heretofore known. Whether any were forms that had been reduced along with the people, or whether all were inconceivably minute forms that have always existed, I cannot say. But the interesting point is that they followed very closely the habits, characteristics and traits of our fauna. Some were carnivorous, others herbivorous; some were diurnal, others nocturnal; and while the flesh of some was edible and extremely palatable and highly prized, that of others was not considered fit to eat. Many were most grotesque in appearance, others were horrible, others were indescribably beautiful. Particularly was this last attribute true of bird-like creatures that I can best compare to sphinx-moths, but whose wings, instead of being covered with scales or down as in our moths, were of satiny tissue most brilliantly tinted with iridescent or opalescent hues.

It was this membrane or skin that was used by the people for their garments, and these creatures, alone of all the fauna, had been domesticated or at least were bred in captivity, by the people. There were not, however, any dangerous, venomous nor harmful creatures in the place, and the people were, as Ramon had stated, entirely free from the pests, vermin and noxious insects, which are such plagues to other inhabitants of the earth.

The plant life, I think, was entirely confined to moulds or fungi. Plants were not abundant, and where there was cultivation, the edible varieties were most intensively cultivated. There were no seeds nor grains as we know them; the plants propagating their kinds by means of spores and spreading roots, and the edible portions consisted of shooots, stems, leaves, and, in some cases, enlarged tuberous root-stalks. Taken all in all, I was amazed to find how closely the life, the customs, the entire system of existence followed our own and yet was totally different. It followed on parallel lines; at every turn there were analogous details and conditions, and yet in no case—or at least in very few—were there identical details. The more I saw of the place and the people, the more I was impressed with the truth of the time-honored hypothesis that like conditions beget like results and that, no matter what their environment or their resources, human beings will eventually arrive at nearly the same results in one place as in another. In fact, I often wondered, if we could but visit the planets, whether we would not find that their inhabitants, while differing in details of life, were after all very similar to ourselves, and if a man, suddenly transported to Mars or Venus, would not, in a very short time, adapt himself to conditions and feel perfectly at home.

And then I wondered if such a person, regardless of the extreme interests he might have in his surroundings, regardless of the fact that he might be better off than on earth, would not at times long to return to his own people and his own home. I felt quite certain that he would, for unconsciously at first but with ever increasing desire, I found myself longing to return to my original normal state. Possibly my desire was actuated by the ineradicable longing that all true scientists possess, to make public my discoveries.

But whatever the underlying cause—and I must confess that I was happy, that I had every comfort and everything that any man might reasonably ask—I was, to use a trite expression, homesick. And had it not been for my wife, whom I literally adored, I should have begged Ramon to enlarge me and—though it would have been with deep regret—I would have bid farewell to Urquin, to him and to Naliche. But the mere thought of losing Mosock Nina was unbearable, and even should she consent to being enlarged with me, I felt that, away from her friends and family and the surroundings and life to which she was accustomed, she would be far from happy or content. But I soon found, as Ramon had so truly said, that man never can fathom a woman's mind, even if that woman is his wife.

She had always been intensely fascinated by my descriptions of the outer world, of my former life and of our civilization. She would listen open-eyed and with parted lips to my words, and finally she astounded me one day by begging me to take her with me and return to the world I had left.

IN vain I argued against her mad scheme, although I fear a bit half-heartedly. But nothing I could say would sway her from her purpose. Her feminine curiosity had been aroused, and womanlike, she refused to listen to logic, although I must qualify that statement somewhat, for I am convinced, from carefully analyzing my wife's idiosyncrasies, as well as those of other women I have met since I have been married, that woman's mind is not constructed on logical lines. However, that is aside from my story.

In vain I pointed out all that Ramon had said in support of his refusal to restore all the Urquins to our normal proportions. I assured her she would be unhappy, discontented and would long to return to her people. I might as well have talked to the mummy of Wira Kocha in the temple. Sickness, disease, all the dangers and perils of our everyday life, were so totally unknown and incomprehensible to her that she did not even grasp their meaning or their importance. As for death—that was nothing as long as I died too, so we would not be parted in Hamak Pakak, the Urquin's heaven. And the instant I mentioned being parted from her people she clapped her hands and danced with delight. It would be wonderful to go out of Urquin, to live in my world, and to come back and tell of all her wonderful adventures. That such a thing would be impossible she refused to believe. Ramon and I had managed it. Ramon had gone and had returned. So why couldn't we? It was useless to declare that there was no manabinite. She seemed to think the crystal could be made by Ramon or by myself and—sly little woman that she is—she knew, by woman's intuition, that I had been more or less homesick and longing to return to my former state for some time. Then she petted and caressed, pouted and pleaded by turns, until finally, at my wits' end, I told her I would leave the decision to her father and to Naliche.

In the presence of Melik, Naliche, and of course Ramon, I stated the case, not without difficulty, for Mosock Nina interrupted constantly. Ramon looked very thoughtful and sad. Naliche's eyes sparkled, yet I instinctively saw no support from her quarter, and old Melik listened intently, stroking his thin beard, nodding his head from time to time, and reminding me of a venerable judge, listening to evidence in a divorce case.

Ramon was the first to speak when I ceased my plea. He used the same arguments he had given me, and added that he had never thought that, after having tried to rejoin him for over a year, I should be so ready to leave him. Poor fellow; he was deeply moved and, for the time, I rather prayed that the decision of the triumvirate would be adverse.

Then Melik spoke. "Wisdom, my son," he declared judicially, and almost as if pronouncing sentence upon me, "is the gift of the gods. Unto thee the gods have given wisdom. Unto our prince," (he indicated Ramon) "husband of the divine Queen of Urquin, has been given even more, and I, the high priest of Urquin—Melik Amautu, was blessed by the gods with rare wisdom. Yet wisdom, my son, grows and flowers only when it is nurtured in good soil and becomes a stalwart tree by years of growth. Hence, my son, I, who have lived many times thy years, have more wisdom than thou, my son, or even than our adored Prince. Yet such is not the case. I have great wisdom of our gods, of our race, of our history, of many things. But my son and our God-sent Prince tells of many things of which they have wisdom and of which I know nothing. My son makes the symbols that speak unto another. My son knows much of other people of whom I know not the names. My son has dwelt in another world, that to me is as unknown as the heavens where dwell the gods. And I, though I am no longer a youth" (I had to smile at the centuries-old priest's words "would learn something of my son's wisdom ere I pass to my fathers. I, too, my son, would go with thee and my daughter into that world beyond."

I gasped. It was bad enough to have to stand out against my wife. But here was the old priest expressing his desire to be transformed to ordinary human size. My thoughts were interrupted by Naliche, who, with as much enthusiasm as Mosock Nina had exhibited, insisted that she, too, would accompany us in our proposed transformation. Ramon threw up his hands in despair, my wife fell upon me and almost choked me with hugs and kisses, and old Melik smiled and nodded as much as to say it was all arranged.

"*Madre de Dios,* what *can* I do?" cried Ramon. "If I should consent to the mad scheme I could never get you all back here. And even if I could, how could I be sure you would not bring diseases or germs or a plague here? *Por Dios,* I won't do it. I'll smash every prism in Urquin, every fragment of——"

His words were silenced by Naliche's lips. But presently he freed himself, and leaping up, paced back and forth excitedly. "And even if I should consent," he exclaimed, "what would become of the people here? They would have no priest, no queen, no——"

"Prince," I supplied with a laugh, "for of course," I added, "if Naliche goes you will go also."

"And also will go with us the little Mara Choki," put in Naliche.

"*Santisima Madre!*" he cried. "We might just as well transform the whole population and be done with it."

"A most excellent idea," I assured him. "Provided you have enough manabinite to accomplish the feat. And, honestly, Ramon, I believe there is no other course. Despite the fact that you claim you are perfectly happy, I believe you, too, would feel more content in our old world and in your old form. And——"

"It's a damnable risk," he burst out. "How do I know that some terrible tragedy may not happen? How do we know that, in the outer world, all the years these people have lived may not come over them with a rush. How would you like to see your Mosock Nina transformed into a gray-haired, wrinkled old woman?"

I laughed. "I'm not afraid of that," I assured him, "and I might remind you that you took far greater risks when you first stood before the reducing prism and drew the bow across the strings of your fiddle. And you took as great a risk when you enlarged yourself to come to me. You were not at all certain you ever could return to Naliche."

"But where could these people live? Where could they go? What could they do?" he cried. "They are living two, three thousand years back. They know nothing of our world, of its dangers, its temptations, its ills. They'd become drunkards, vagabonds, thieves, or they'd become civilized, lazy, dirty Indians, and in a few years—even in a few months—they'd disappear, die off."

"By Jove!" I ejaculated. "I believe I have the answer to your questions, Ramon. Do you remember I told you of a remarkable hidden and inaccessible valley I stumbled upon in the mountains? Remember, I told you that it could be reached only by a hidden way, by a narrow cleft just at the snow line, and which, from even a short distance, appeared to be blocked by a cataract of water melted from the glaciers. And the entrance could be held by one man against hundreds if need be. No one could leave or enter unless it was desired, and the valley itself, the crater of an extinct volcano, is most beautiful. It is warm and sunny; a brawling river flows through it, the soil is rich, it teems with fish and game, and there are even wild llamas, the descendants of those that escaped from captivity ages ago. And it was at one time inhabited. There are the ruins of houses, of a temple, of impressive buildings, and many in such perfect condition that they could be used as habitations today. It would be, I think, an ideal refuge for these people. You could reign as their king with Naliche, their queen. They would be as completely cut off from contact with the world as here, and they, you, would be far better off and just as safe if not much safer. And I can guide you to it easily. It's barely four days' tramp from Manabi."

Ramon's eyes had brightened as I continued speaking, and I knew him so well and could so readily interpret his moods that I knew he, too, had been won over.

"Por Dios, I had forgotten that!" he cried, springing forward and embracing me. "It's the very spot and—*mil diablos, amigo mio,* I must admit it, you *were* right about my longing to go back to the outer world. I've been worried to death for months fearing some such calamity as you suggested. At first I did not fully appreciate our minute, our incalculably small size and the ever-present dangers that surround us. It has been by the merest chance that Urquin hasn't been utterly destroyed with all its people centuries ago. Suppose, for example, some prospector, some settler, some confounded archeologist should drive a stake down in this spot! *Valgame Dios,* it makes me shudder to think of it! Or suppose some one happened to kindle a roaring campfire over our heads! But now you remind me of that secret valley, I shall hesitate no longer. Just as soon as I can build a large enough prism—or rather a series of small ones—with the capacity to transform everyhere one at one time, I'll move every soul in Urquin to your blessed valley."

I grasped his hand. Naliche cavorted and danced in most unqueenly fashion. Mosock Nina alternately threw herself upon me and upon Ramon. Old Melik fairly beamed, and Mara-Choki, not to be outdone, crowed lustily and kicked his heels in delight.

CHAPTER XII

The Manabi Village Enlarged

RAMON'S preparations for the greatest event in the history of Urquin since its inhabitants had been accidentally reduced, did not require as much time as he or I had anticipated. This was due largely to old Melik. The old priest astounded us by revealing the fact that he knew of a large mass of manabinite but, having always regarded the stuff as evil and as magic, he had never told of it to anyone. But now that he was keen on entering an entirely new world and a new life, he lost no time in guiding us to it. The mass of crystal was—in the terms of ordinary measurements—an infinitesimal bit of dust, hundreds, thousands of times smaller than any visible dust mote. But in comparison to the other fragments we had seen, in comparison to ourselves, it was enormous, and Ramon felt sure that it would possess sufficient power to transform the entire population at one time. But, as he wisely pointed out, there might be difficulties or even real dangers in attempting such a wholesale enlarging.

The note of the *quena* might not be powerful enough to actuate the huge prism and it might, for all he or I knew, enlarge everyone to gigantic size.

Moreover, the mechanical difficulties to be met in transforming the mass to a prism were nearly insurmountable. But, as Ramon pointed out, it would provide material enough for prisms for every inhabitant. Each, he explained, would be back of his or her individual prism and—if he were not wholly wrong in his calculations—a single note would do the trick.

This seemed as reasonable as anything in the impossible land, and we at once set to work with a gang of skilled stone-cutters. In a very short time, we had the entire mass of crystal in Ramon's workshop. Then the cutting, grinding and polishing of the crystalline prisms began, and months went by before one-half of them were completed. But eventually all were ready, and Ramon devoted the greatest care and many days to setting up his stands and adjusting devices in the plaza. They were arranged in a circle, spaced with the most exact mathematical calculations, precisely the same distance apart and from a common centre, where another was placed. With equal precision and exactitude Ramon placed small stone tablets on the ground, each the identical distance from a prism as its neighbor, and he placed another the same distance from the central stand. The idea, he explained, was to insure the actuating vibratory note reaching every prism at the same instant and with exactly the same volume. On each plate or slab a man, woman or child was to stand. He was to stand on the central slab and at the properly pitched note on his *quena* every prism would—if his calculations were not at fault—act simultaneously and enlarge every human being equally and at the identical instant.

The people, of course, had no idea of what it was all about. I imagine they regarded our preparations as mystical rites, and that some very holy and important religious ceremony was to be held in the plaza. And when at last the great day arrived, and at Naliche's commands, backed by those of Melik, the wondering and somewhat timid inhabitants flocked to the plaza and were arranged upon their respective stone pedestals, they felt certain they were taking part in some new and extremely important ceremony of their religion. And as I looked at them, submissive, peaceful, raising no questions, regarding their priest, their queen and their alien king with something akin to adoration, and knowing nothing of what was about to take place (or so at least I hoped) I could not help feeling sorry for them. It was all well enough for Ramon, myself. Mosock Nina, Naliche and Melik. We knew what we were doing, what to expect, what (provided all went well) would happen, and we had chosen to be transformed to another state of our own free will. But these poor folk had no idea of events to come. They had no say in the matter, for of course it would have been hopeless to have attempted an explanation, and they were, even if unconsciously, about to be torn from homes and all their possessions. Then I noticed that every individual carried bundles, a bulky package or two, wrapped in the thin, parchment-like material I had employed for my notebook, and tied with thongs. What, I wondered, did these packages contain? My unspoken question was answered by Naliche who was now speaking.

SHE was telling them that she, her husband, the priest and the *Amautu* (Wiseman) with the beard (myself) had decided it was best for all to go to a new land, that there was no danger; and she was asking if all were there, if all were in readiness for departure. "Have all obeyed my instructions to have with you food that may sustain you on the long journey?" she asked.

By Jove! she had had more common sense than any of us. She had foreseen that the people would need food, and had given directions for all to provide themselves with enough provisions to last for some time. But what food had they taken? If they had cereals, vegetable foodstuffs, in their packs, they would find nothing within the wrappings when they had gone through the approaching transformation. It would never do to overlook this detail, and breaking in upon Naliche's words, I voiced my fears to Ramon.

"Don't worry," he assured me. "Naliche saw to that. All they carry is meat. But how about yourself? Where's your *comida* (food) *amigo?*"

"I—I—" I stammered, heartily ashamed of my own lack of foresight. "I——"

"It is provided," announced my wife. "My dearly beloved cannot remember even to eat many times, so busy is his mind with other things, and so I have what he shall need on the journey. It is with mine in the hands of *Manakan* (our serving man) and *Yakussa* (her maid)."

And now Melik was speaking, and as I turned towards him I grinned. The old priest did not intend to go hungry at any rate. Beside him stood an immense bundle half as tall as himself and far greater in girth than his lean body.

"My children," he said, "fear not, no matter what may happen. We go upon a strange journey, and the King and the Wise One of the Beard, with their magic and with the help of the gods and the stones of green, will shorten our journey, and strange events may come to you. But you need have no fear, for think you that your divine Queen and your King of great wisdom, and the Prince, Mara Choki, and my daughter, Mosock Nina, and even I, your priest of the sun, would face dangers if such they were? And now prepare yourselves, for all is in readiness, and fall upon your knees and give prayers unto the gods of our fathers. And chant praises unto Inti and unto Wira Kocha, and unto our divine Queen and our King, and unto the Wise One of the Beard, for great will be the blessings that shall be yours."

With one accord everyone knelt, and in unison their voices rose in the joyful chant of praise. Then in silence they rose, and though I saw awe and reverence and wonder upon their faces, nowhere was there a sign of fear or of doubt. Their faith was sublime, and they would follow blindly without thought of question, wherever their adored queen and their revered priest might lead.

Then I saw Ramon place his bone quena to his lips, as expectantly, all waited for the unknown events that were to follow. A few soft low tones came from the instrument, and then a quavering, wailing note that seemed to tear at one's very heart strings. Higher and higher it rose, and I realized that it must have some strange, hypnotic quality, for I felt suddenly drowsy; despite my efforts to observe what took place, my eyes closed, and I felt that delightful but indescribable sensation that we have when on the borderland of slumber. Then, with the same abrupt jerk with which one awakens from such a semi-conscious state, I came to my senses and opened my eyes.

I glanced about, and an ejaculation of surprise and disappointment escaped me. What had gone wrong? Had the prisms failed us? There, still gazing with awed, wondering faces, were the people. There stood Ramon, quena in hand. There was Naliche with the little prince in her arms, Mosock Nina's hand rested in mine, and—I gasped, utterly unable to believe my senses. The great temple, the palace, every building had vanished! The stones on which we had stood had disappeared! On every side stretched barren sand, broken only by clumps of stunted trees and giant cacti. Was it possible? Had——. Ramon's voice broke the silence. "Well, *amigo,* here we are!" he cried gaily. "Easy as possible. Not even a jolt or a jar on that trip. And—*Por Dios,* what *do* you see? You look as if you saw a ghost." He turned in the direction in which I was staring, as if, as he truly said, I saw a ghost. And little wonder, for as I had glanced at Melik I had seen beside him, not the bundle I had noticed in Urquin, but the dried, mummified body of Wira Kocha!

Ramon chuckled. *"Madre de Dios!"* he exclaimed. "He's brought along the ancestral god! Well, it's not a bad idea. These people will feel far safer and more content with him to watch over them. I'm surprised old Melik thought of it. But he's a wise old—"

A joyful yelping interrupted his words and into the circle trotted the burro with the dog leaping playfully about him. We had completely forgotten them, but they must have been within range of the manabinite's activity, for here they were, still with us. Then my eyes caught sight of something else. Sniffing about the sand as if searching for food in this unfamiliar land, were two of the strange, eight-legged, hard-shelled creatures that had been domesticated by the Urquins. And as if the presence of the four familiar beasts broke the spell that was upon them, the people burst into joyous shouts and everyone began to laugh, talk and chatter at once.

"Santisima Madre, but it's hard to believe we've ever been away from here," cried Ramon. "Look, *amigo,*

there's your camp—nothing's changed. I wonder if your men are still here. If they are and they see this crowd, they'll take to their heels or drop dead with terror. I——"

"No chance of that," I replied. "They've undoubtedly left long ago. You forget I've been away for months. But we might as well stop here and use the camp tonight. It's too late to start off for your secret valley now. We can start first thing in the morning, and there's no chance of being intruded upon here."

"Fine, come ahead," cried Ramon joyously, and with Mosock Nina's hand clasped in mine, accompanied by Ramon, Naliche and old Melik, who was followed by two temple attendants carefully carrying Wira's mummy, we led our little host across the stretch of desert towards my former camp. As I had expected, it was deserted (I did not learn until much later that the men had abandoned it a few days after I had disappeared with Ramon). But I suspected as much when I found that the camp contained a large portion of my outfit and a quantity of provisions. That the scallawags had left anything of value was due entirely to their inability to carry any more in their canoes. But the food was most acceptable and the tools, the supplies, the innumerable utensils and articles with which I had equipped myself for the expedition and for a stay of unknown duration at the spot, would all be invaluable to Ramon and his people in their new home. And he was overjoyed to find that the corn, the beans, the potatoes and *camotes* (sweet potatoes), were all untouched by mice or weevils, and would serve as the nucleus for bounteous crops and harvests in the hidden valley. And I had to laugh at his delighted exclamation, when, in cleaning out the place, he found that the straw used by the men for their beds had heads of wheat and barley in the litter, and that there were grains of the cereals still in them. In fact the rubbish proved a veritable treasure-trove, and for once I was thankful for the untidy, not to say filthy, habits of the natives. There were orange and lemon seeds scattered on the floor. We picked up a number of *durazno* (peach) pits. Remains of pineapples, cast carelessly outside, had taken root, and several *palta* (alligator or avocado pear) seeds had sprouted. There were a few peanuts also. And there was a bag of cocoa beans, and a small sack of coffee beans.

"Gracias a Dios!" exclaimed Ramon. "We can now raise everything we need in the valley. All we lack is sugar and cotton."

"Don't worry over those," I said. "Whoever lived in the valley before left plenty of cotton—there are acres of it, and as for sugar, look here." I led him to one side of the camp, and pointed to a clump of scraggly cane. "Thank Sam for that," I said. "Like all West Indians, he was forever chewing sugar-cane, and just as an experiment he planted some here. It's pretty poor stuff, but in good soil it will be as fine as you can wish. Now let's get settled down for the night. By Jove! Look at the people, Ramon. What's the matter with them? They're frightened half to death."

Ever since we had arrived, the people had been timid, herding close together, gazing about at every object, for of course every object was new and strange to their eyes, and even Melik, Naliche and my wife kept close to our sides, awed and half-frightened, amid their strange surroundings.

But now abject terror had seized the people. They had clustered together in a dense throng, they were fairly quaking with dread, and strange sobbing sigh-like wails arose from them.

All were gazing with abject fear into the east, as if they had seen some horrible apparition.

Then, as Ramon and I followed their terrified gaze, we burst into peals of laughter.

They were looking at the moon!

But to them it was no laughing matter. Even Melik was frightened half to death, and little wonder. Although there had been night and day in Urquin; light and darkness, yet never had the Urquins viewed either the sun or the moon. To them the sun was merely light, and was visualized only in the image of the sun-god, a symbol handed down from the times when their ancestors had been full-sized men and women. Yet now, here in this new, strange land, they saw this great, round, luminous thing rising like a ball of light in the sky. To their eyes it seemed the metal sun-disc of their temple come suddenly to life, for, seen through the haze above the mountains, it was golden in color, and the dim shadows of mountains upon its surface were not unlike the features graven upon the gold sun in the Urquin temple. And to see the sun-god suddenly appear to them as a moving, apparently living thing, was as terrifying, as awe-inspiring to them as the sudden reincarnation of our God would be to us.

It was with the utmost difficulty that we calmed their fears, and we never would have succeeded if it had not been for Melik who, being a most sensible chap, even if he was my father-in-law, quickly grasped the situation and, with his accustomed ability to take full advantage of the psychological moment, saw, in the rising moon, an opportunity not to be missed.

"Behold!" he cried in his deep, ringing voice as he raised his gaunt arms and all eyes turned towards him. "Behold, my children, the Goddess, *Mama-Quilla,* wife of our Lord *Inti,* the Sun. She comes to smile upon you, her people, and to do homage to our sacred Wira Kocha, whose spirit ever guards thee, and whose body is here beside me. Fall upon your knees, O, my children, and give prayers to *Mama-Quilla,* that, throughout this night and the nights to come, she may ever smile benignly upon thee, while her lord the Sun is at rest, and pray unto her to carry thy prayers and thy salutations to her Lord, that he may smile brightly upon you on the morrow and on each day until the end of time."

Ramon, who had dropped to his knees beside me with the others, nudged me. *"Por Dios,* I'm afraid your respected father-in-law is fixing for a cropper," he whispered with a grin. "I wonder how he'll square himself when the moon wanes and doesn't show up some night."

"That's his lookout," I whispered in reply, as I squeezed my wife's hand reassuringly. "But you needn't worry over him. You'd have to get up mighty early to get ahead of him, Ramon. In fact you'd have to stay up all night. He's nobody's fool by a long shot, and instead of taking the cropper you foresee, he'll turn it all to his own account—or rather to the glory of old Wira Kocha and his faith."

Ramon chuckled. "I'd give a lot to know what Wira himself thinks about it," he murmured. "Look at him! He may be only a mummy, but, *por Dios, amigo mio,* I could swear he winked when he caught my eye!"

CHAPTER XIII

Finale

THERE is not much more to relate. And as I sit here, writing these lines with my adorable Mosock Nina beside me—though in her conventional clothes she is not to my eyes as beautiful as in her scintillating robes of insect-wings, I find it hard to believe that all the events I have written down actually occurred. Despite my strange notebook—which by the way contains only blank pages, for of course the writing, being in vegetable ink, was not enlarged; despite Mosock Nina; despite our Urquin costumes carefully packed away, and despite my vivid memories and my wife's confirmation of the details, I feel at times as if it were all a dream.

It seems incredible that I, that my wife, that Ramon should have been invisible, microscopic beings in an equally microscopic land. And it seems almost as incredible that Ramon, Naliche, Melik, Mara-Choki and all the others—even the mummy of that unknown ancient Semite, Wira Kocha, are in the hidden secret valley in the Ecuadorean Andes. And yet I know it to be so, and I know—unless some unforeseen casualty prevents—that, within the next thirty days, my wife and I will be again among her people; that I shall again be clasping the hand of Ramon; that I shall again greet Queen Naliche and old Melik the priest, and that I shall again look upon the mute, bearded body of Wira-Kocha seated in his niche in the restored temple in the hidden valley, now green with the tilled fields of maize, wheat, cotton and cane of the happy, gentle Urquins. Whether we shall remain there and settle down to spend our lives among the adopted people of Ramon, I am not sure. But even should we decide to return to our so-called civilization—which I doubt, for I am becoming heartily sick of it all—we can always return to visit Naliche, Ramon and the others whenever we wish.

But I am digressing. Early on the morning following our strange transformation we started on the long journey to the secret valley. No human eye saw that strange procession as it wound across the desert towards the distant hills, for in all that land no human being dwelt. The first part of the way was hard, for it led across the desert, but the worst of it was over before the sun rose high. Then, to rest the people, and out of consideration for the women and children, we halted in a grove of trees during the hottest portion of the day and resumed the journey in the afternoon. Of course, though I forgot to mention the fact, the rising sun caused almost as much terror and even more awe than had the moon the night before. But in a way the people had been prepared for the appearance of the blazing deity, and were expecting it. And of course everything they saw filled them with wonder. They had literally entered a new world and it speaks volumes for their courage and for their entire faith in their rulers and their priest, that they did not become paralyzed or stampede with abject fear of the unknown, and of the strange objects, conditions and surroundings.

As we ascended the Andean ranges we were forced to proceed very slowly, and I, as well as Ramon, began to fear that the altitudes would play havoc with the people and that, after all, we might be forced to abandon our well-laid plans.

But in this we were mistaken. The Urquins showed no serious effects, even at heights that would affect many men accustomed to mountains, and in due time we approached the glistening snow-caps of the peak wherein the valley lay. It was well that Naliche had foreseen the need of food, and it was still more fortunate that the supplies had been augmented by what we found in my camp, for long before we reached the narrow black cleft that was the entrance to the valley, we were all on short rations. But we did not worry. I knew that we would find game within the valley—fish and probably some edible vegetables that had run wild since the place had last been inhabited. In this I was not mistaken. And Ramon, when he looked upon the great fair valley was enthusiastic in praise, while Naliche's eyes sparkled. She fairly danced, and all vowed that they had never dreamed there could be a scene so beautiful. Beside the river we made our temporary homes, using the ruins of the ancient inhabitants for shelter, and in the vicinity we found an abundance of half-wild maize, of *camotes,* peas, beans and other food. The dog chased and captured a large marmot; several of the men—accustomed to hunting the giant insects of their former home—secured a deer, and all dined well. Meanwhile, Melik, in whose mind religion took precedence over food, had cleaned out the ruined temple, had installed Wira's mummy within it, and as the sun set, he summoned all to render their devotions and to give thanks to the gods for the blessings they had received.

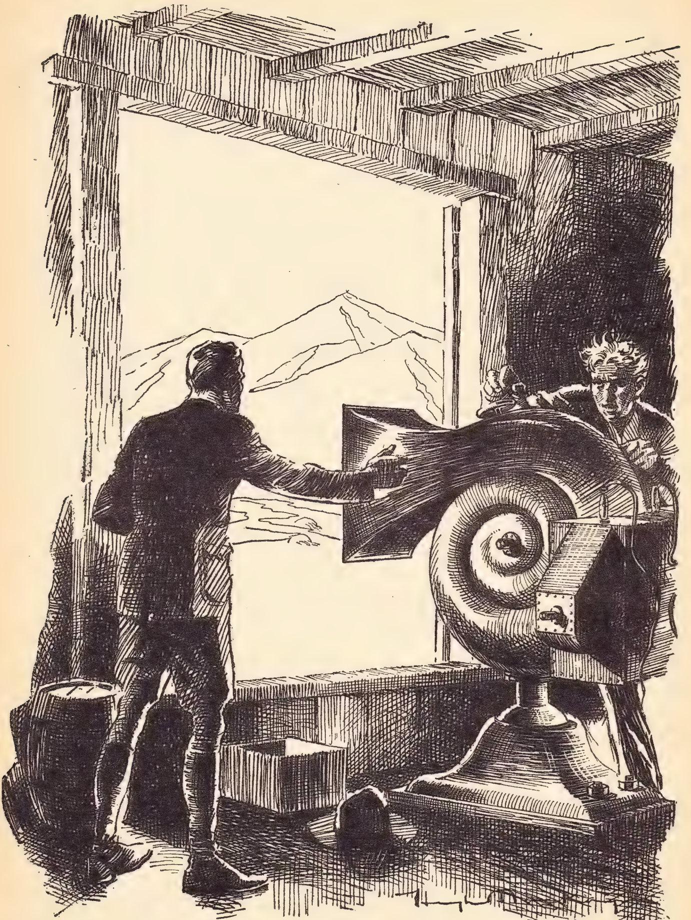
I was truly amazed to see how quickly the people adapted themselves to their new environment. Within a few days they were taking everything as a matter of course. They found no difficulty in cultivating the new crops as well as they had those in Urquin. They fashioned weapons and hunted the beasts and birds so strange to them. They repaired and occupied the prehistoric dwellings and transformed the ruined palace into a royal home for Ramon and Naliche, and they worked like beavers from dawn until dark.

Even to Ramon, who was not yet convinced that they were better off, it was obvious that, under the new state of affairs and in the pure mountain air, the people were livelier, stronger than before, and he was vastly relieved to find that the youth of the aged and the—well somewhat advanced—years of Naliche and of Mosock Nina, was not altered by their change in life and environment. In fact, in a short time, he was as enthusiastic over the transference as was everyone else. But he expressed a fear that somehow, sometime, the valley might be discovered and invaded. "There's always the chance of an airplane seeing us," he declared. "Then how could we remain free from all the damned troubles and ills of the rest of the world?"

"There's no fear of that," I assured him. "In the first place no plane is coming this way if the pilot can avoid it. It's far too dangerous, flying among these high peaks. An aviator would have to reach an altitude of more than twenty thousand feet to cross the surrounding summits, and at that height he couldn't distinguish the details of the valley. And even if, by some miracle, he should see houses and fields here, he'd assume they were ruins and deserted fields of ancient, long-dead inhabitants. No, Ramon, you and your people are as safe here as on another planet. Rest assured of that."

I remained with him and his people for several months, until I had seen them well started and established. But my wife was as anxious to see the marvels of the rest of

(*Continued on page* 1086)



¶ *"Watch this one," he said, and directed and elevated the muzzle of his machine.*

Into *the* VALLEY *of* DEATH

By Alfred Pringle

¶ A projectile discharged at high velocity begins at once to lose its rate of motion. It does not seem to us a thing of impossibility that some day someone will find the secret whereby some of the radiant or wave forces of nature might be used to do this thing as a substitute for powder to carry destruction with itself at uniform velocity to any distance. The denouement of this vivid story occurs in a startling manner in the inventor's laboratory in Death Valley.

Illustrated by
McKAY

I LET the receiver fall back on its hook with a bang and turned in my chair. "Among our list of inventors, Jim," I said to my partner across the room, "do we have a Mr. James T. Miller?"

Jim looked up from the pile of papers over which he had been working and stared thoughtfully for a moment at the ceiling.

"I don't remember anyone by that name. What's his racket?"

"He claims to be an inventor of deadly weapons. That was he on the phone just now. He's coming to show us an invention which he wishes to offer to the United States government, and being a kind hearted soul, he's going to let us handle matters for him. I've made the appointment for two o'clock, which means we've just got thirty-five minutes to wait."

Jim laughed. "Another nut. I suppose he could have won the world war if he'd been given a chance. What else did he say?"

"Well, he claims this invention will revolutionize modern warfare. That was about all."

"That's enough, if he can do that," Jim remarked and went back to his papers.

It was five years now since I had taken Jim Parsons into my office as junior partner. During those years, our business had grown to such an extent that ours was now one of the best known of the patent attorney offices in the city. I had been somewhat skeptical when I first accepted Jim, for he scarcely had been out of law school a year and was considered rather wild. He possessed, however, a certain shrewdness which, from the first, marked him as one who would be successful in the law. In fact, I soon turned the entire legal end of the business over to Jim, for I found him capable of handling it.

I was puzzled about this man, Miller. He had talked very earnestly over the phone and had even gone so far as to offer to pay us for our time, if we were not interested. Freak inventors are not usually willing to back up their ideas with money.

At about five minutes before the time of our appointment I happened to glance in the direction of the office door. A shadow passed across the frosted pane and then in a moment repassed. I stepped quickly to the door and swung it open.

A stranger was pacing the corridor, his hands clasped behind his back and a far-off expression in his eyes. He stopped when he saw me.

"Are you Mr. Harding?" he asked.

I nodded.

"I am Mr. Miller, the man who phoned you a half hour ago. I got here a few minutes before the time you set, so I spent it in my pacings. I work out quite a few of my ideas in this way." He smiled, rather foolishly I thought.

"I perceive," he went on, "that you saw me through your office door. I suppose you have the light in the corridor arranged for this purpose?"

I did not reply. It was beginning to appear as if Jim was right. If this man was not crazy, he certainly was most eccentric. However, we could hardly turn him away without an interview. I decided we had best hear what he had to say, and then get rid of him in the easiest way possible.

"It is now two o'clock, Mr. Miller," I remarked patronizingly; "If you are ready, we should like to hear about your invention."

"You will not only hear about it; you will also witness a very convincing demonstration," he said as he picked up a large package which had been lying beside the door, and entered the office.

I followed and introduced him to Jim. We drew up chairs, and Miller placed the package on the floor beside him as we sat down. In the better light of the office I had a chance to examine him more closely. He was a large man of perhaps fifty, clean shaven, and dressed in a gray business suit. His skin was very dark, and but for his excellent English I would have taken him for a foreigner.

"You are quite sure we shall not be overheard in here?" he asked glancing suspiciously around.

"This is Saturday afternoon and the office force are all gone," I assured him. "We are alone in this part of the building."

My statement seemed to satisfy him.

"I have often thought," he began, as he leaned back in his chair, "that the present method employed in projecting a missile is neither the most effective nor the cheapest means available. In throwing a projectile with gunpowder, there are several elements which act upon it to lessen its effectiveness—air resistance and the pull of gravity, for instance. There are, however, certain natural forces available to mankind which never have been used, until I centered my attention upon them. Electricity, of course, has been experimented with, but without much success. To throw a bolt of electricity, with sufficient power to destroy, was a far more expensive means than the use of gunpowder. I next turned my attention to other sources. Light was not solid enough. It had the speed behind it but it lacked the consistence. This I also discarded.

"My next experiment was with sound. It proved to be the very thing I was looking for. Sound does not have the speed of light, but there is a certain force behind it."

Miller paused to light a cigar. I looked at Jim. He was grinning good-naturedly, and as he caught my glance, he winked. By this time I was quite convinced that the inventor was crazy; still, we had to give him a chance to tell us about it.

"Perhaps you have noticed," Miller continued, "that when a low note is sounded on a pipe organ, it creates a vibration in objects close at hand. I worked from this fact. Now, sound travels at the rate of one thousand, eighty-seven feet a second, a speed about one-half or even one-third that of a bullet. This speed, however, does not lessen with distance as does that of the projectile.

"Now then, as the pitch of a tone becomes lower, the vibrations per second lessen. Therefore, as the range is limited in that direction, I had to work to the other extreme. My first task then, was to invent a sound producer, the note of which would have an enormous number of vibrations. I have succeeded in constructing such a machine. Its frequency is so high that it is far above the range of the human ear. This supplied the necessary force to my sound projectile. Next came the most difficult task of all—the construction of suitable reflectors. Perhaps you have noticed that when a stone is tossed into a pool the ripples thus caused grow fainter and fainter as they spread away from the center. Sound acts in very much the same way. To overcome this loss by spreading, I built reflectors which would cause the sound to travel only in one straight line or beam. I can vary the width of this line at will. You, no doubt, see the possibilities of such an invention. I can destroy a path either as wide or as far as I wish.

"To control the range, I have built a deflector which causes the waves to spend themselves, one against another, at any point I set."

HE paused and smiled. The grin had faded from Jim's face and in its place there was a look of apprehension. The thing had certainly taken a serious aspect. I had no doubt that the man was mad, but there was a great deal of logic in what he had said. I hated to think what might happen if such a power as he described were used for some maniacal purpose.

"I believe," Miller went on, "that I have given you a fairly clear idea of what lies behind my visit here. Now let me give you a practical demonstration."

We gazed silently as he placed the package on a desk and removed the wrapper. The machine he disclosed to our view was as strange a thing as I had ever seen. There was a horn, shaped very much like a megaphone, but squared off at the open end. Directly behind this was placed a piece of twisted tubing, which resembled a snail shell. A steel box had been set into the center of the tubing and the whole machine, with the exception of the horn, was enclosed in a glass case. A small shaft ran out of the steel box through the glass and was connected to an electric motor. A control panel was located in the very rear of the machine. With an electric cord the inventor connected the motor to a light socket and then busied himself at the control panel.

He worked silently, paying no attention to us. Jim leaned intently forward in his chair, watching the man's face. Presently Miller straightened up, walked over to the wall, and pressed the light button. The motor began to whir softly. Then he took from his pocket an oblong piece of metal and held it in the palm of his hand for our inspection.

"This," he explained, "is a piece of manganese steel. It is one of the toughest metals known to modern science. There are no tools made which can cut it. It must be ground.

"You shall see what happens to it."

He placed the piece of steel on another table directly in front of the horn shaped muzzle of his weapon. Then he walked around behind his machine and again glanced over his controls.

"Now!" he cried, and pressed a small lever at the side of the panel.

I glanced sharply at him as he uttered that cry. A peculiar light burned in his eyes—like the light of a maniac. It faded at once.

Jim stared, fascinated, at the piece of steel. Slowly before our eyes it crumbled until it lay, a disintegrated mass, upon the table.

Mr. Miller raised the lever and, crossing the room, switched off the current. His demonstration had been completed.

He took his seat; "I hope, gentlemen," he smiled, "that I have been able to convince you that there is something practical behind my invention. Now here is a proposition I would like to make to you: In an isolated spot in Death Valley I have erected a laboratory. So far as I am aware, I am the only one who knows of its whereabouts. There I have constructed a machine quite similar to this model, but of far greater proportions. With it, I assure you, I can destroy the city of Los Angeles. So great is its power. Before we go further into this matter, I should like to take you out there for a more thorough examination of my invention. If you are agreeable, I shall call for you here, at this building, tomorrow morning at eight."

I glanced inquiringly at Jim. For a moment he was thoughtful. Then he nodded his assent.

"Tomorrow at eight, then," I agreed.

Without another word to us, Mr. Miller wrapped up his model, tucked it under his arm and left the office.

As soon as he had gone I went to the table on which lay the little pile of steel dust. The fine powder sifted through my fingers as I picked it up. The surface of the table was scorched as if fire had touched it.

"Well," I inquired, turning to Jim, "what do you think of him?"

"He's crazy all right," Jim nodded slowly. "But if he has such an invention as he describes, it is not a safe thing to leave in his hands. What's the matter with turning the whole thing over to the police?"

"Several things." I assured him; "In the first place, if they arrest Mr. Miller, I doubt if they could ever make him disclose the location of his secret laboratory. To find that place in the innumerable cañons and quicksand traps of Death Valley would be next to impossible. No, I think our best plan is to accompany him and then figure out the right thing to do when we get there."

THE next morning, as I approached the office building, I saw that Jim was there ahead of me. He grinned cheerfully enough as I came up, but I judged by his heavy-lidded eyes that he had slept little better than I had.

"Did you rest well last night?" he asked.

"Fairly well," I said, "but I've seen this city lying in ruins a dozen times in my dreams."

"It was about the same with me," he admitted. "This thing is getting on my nerves."

I set my bag down alongside of his, for we had come prepared to stay three or four days.

"You didn't forget anything?" Jim tapped the bulge on his hip significantly. For answer I slipped my automatic out of my pocket far enough for him to see it.

Promptly at eight o'clock, a touring car drew up to the curb. Miller sat in the tonneau, and a Japanese chauffeur was behind the wheel. As we got in, I noticed that there were provisions lying on the seat beside the driver.

The inventor was not in as talkative a mood as he had been the day before. He greeted us briefly. "I'll tell you my plans," he said as we moved off. "I intend to stop at some desert town tonight. Then we'll get an early start tomorrow morning and reach the valley before it gets hot."

After this bit of information he lapsed into a silence from which neither Jim nor I could lure him.

IT was very early the following morning when we made our approach to Death Valley. We had traveled all the previous day without incident; and had stopped for the night, as Mr. Miller had planned, at a desert town. We were again on our way the next morning before the first streak of dawn had shown itself over the ridge of the distant mountains.

As daylight came, the mountains around us loomed up more distinctly. Far to the east the steely blue Funeral Range stretched out before us. On the west, and much nearer at hand, lay the Panamints, their sides splashed with reddish tints.

As we moved along, I stole a glance at Miller. His eyes were shining as he peered at the scenes around us. I knew he loved this valley of Death. He waved a hand in a northeasterly direction.

"Off there," he explained, "lies the Armogossa bog. It is formed by the Armogossa River which loses itself in the sands of this valley; that is where so many men in the earlier days were sucked down in its treacherous quicksands when they sought a short cut across the valley." He chuckled softly as if the thought were pleasant to him.

"Those white splotches you see," he went on, "are borax deposits. The valley is very rich in them."

Then almost abruptly the scenes changed. The road we had been traveling had carried us quite close to the foothills of the Panamint Mountains, and now, as the chauffeur swung his car off the road, we traveled straight into them.

The walls of the cañon up which we drove rose higher and higher. Mr. Miller beamed as the picture before us unfolded. I believe I never before saw the variety of colors displayed in those rocky walls.

At a point about a mile from the main road the Jap suddenly turned his car and entered a narrow gap in the opposite wall of the cañon. This gap in turn widened out into an arroyo which we followed for another mile.

"End of the line," Miller smiled as the car stopped. "We proceed the rest of the way on foot."

He packed the provisions into a knapsack, swung it over his shoulder, and started up the side of the arroyo.

Jim and I followed with our bags. The Jap remained with the car.

It was hard work to keep up with the figure ahead of us. The going was steep and slippery. With our free hands we grasped at jutting rocks and bushes to help us along. Presently we reached the top, where we paused for breath. I looked back over the trail we had come. In the distance I saw the car making its way down the arroyo on its return trip.

"That Jap is a good man," Miller commented. "We have made this trip a hundred times and never once has he attempted to follow me."

When we regained our breath we moved on, pursuing a faint trail which ran along the rim of the arroyo for a short distance. Then abruptly it swung off across country and there followed a series of tortuous climbings and descents. The sun by this time had risen high and the heat was almost unbearable. We moved along in silence. Then suddenly as we topped a small hill, there lay before us what can best be described as a huge hole in the earth. At one time it must have been the crater of a tremendous volcano. At any rate there it lay before us, the sun glinting from the colored rock on the opposite side. It was perhaps three miles wide and five long. The sides were perpendicular except at the point where we stood, and the floor was strewn with great boulders. We scrambled and slid to the bottom of the crater.

Then I saw the laboratory. It stood about two hundred feet from us; a roughly-built structure, a single story high. So cleverly was it sheltered by the overhanging cliffs that it had not been visible to us from the top.

As we approached the building, I turned to Miller. "How," I asked, "did you ever manage to construct this building in here?"

He smiled and shrugged. "It was an absolute necessity that I should have some place, isolated from the rest of the world, where I could carry on my experiments with this invention. I found this spot and decided to use it. I made trip after trip here, bringing in materials and supplies."

When we reached the house he unlocked the door and stepped aside for us to enter. We deposited our bags within, and he stored his provisions in a cupboard.

There was only one room in the place; a wide bench had been built along one wall and this was strewn with as complete an assortment of laboratory equipment as I have ever seen. A generator driven by a gasoline engine stood in one corner. A few chairs, a table, and a cot completed the furnishings.

Jim was gazing curiously around. "Where's the machine?" he asked Miller.

The inventor pointed through a window to a small outbuilding. "In there," he said. "After we have had a bite to eat we'll visit it and make a few experiments."

It was not yet noon but we ate ravenously of the meal Miller prepared for us. When the table was again cleared he went to the generator in the corner and examined it carefully. Then he started the gasoline motor. The generator whined above the put-put of the engine. Miller turned to us.

"If you are ready," he said, "we will go and try out the machine."

Leading the way out of the house, he locked the door behind us, an unnecessary precaution, I thought.

As we approached the outbuilding I saw that its large swinging door opened out upon the rocky floor of the crater.

I was not particularly surprised at the machine he disclosed to us when he opened the door. It was quite similar to the model he had shown us in our office, except that it was constructed on a much larger scale; there was the same peculiarly shaped barrel, but the glass case which had enclosed the rear part of the model was represented by a great steel box. Inside we could hear the whir of a motor as it was driven by the generator in the house. The inventor went to the control panel and set his dials. Then I saw a crafty look come into his eyes.

"There is a slight adjustment to be made on the generator," he explained. 'I'll be back in a minute."

He went to the house and let himself in. I nodded significantly to Jim. Without a word he moved quietly to one of the windows and peered in. In a moment he returned.

"He got something from the corner where the generator is," Jim whispered, "but he made no adjustment."

I was troubled. It was apparent that Miller had some other scheme besides showing us his invention. What it was I had no idea but I felt reassuringly of the automatic in my pocket.

Miller's peculiar actions had not affected Jim as they had me. He was enjoying himself moving about the machine and examining it.

When Miller reappeared, he did nothing which warranted my suspicions. Going to his giant weapon he again set the dials and then pointed to a huge boulder about half way across the crater. He calmly pressed the lever. With absolutely no noise the great stone flew into thousands of pieces. Miller laughed shrilly.

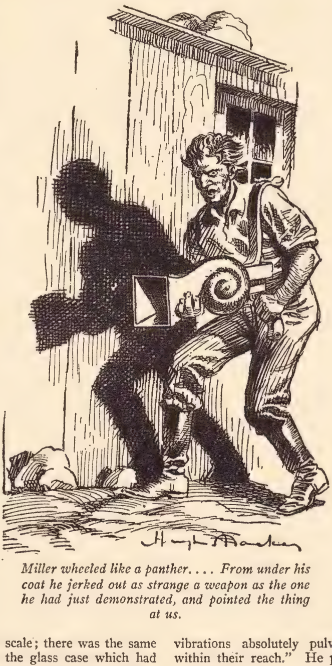
"How do you like it?" he asked, as he swung the machine around for another aim and again pressed the lever. Another boulder flew to pieces.

"Watch this one," he said and directed and elevated the muzzle of his machine.

Far across the valley towered a tall precipice. As we watched it a section fully two hundred feet in width quivered for a moment, lunged forward, and then plunged to the floor of the cañon with a tremendous crash.

We stood there, awed by the irresistible power the machine possessed. Miller was calmly walking forward to examine the destruction he had wrought. Mute with astonishment we followed close behind him.

"You'll notice," he remarked, stooping and picking up a small piece of rock, "How the sound vibrations absolutely pulverize anything that comes within their reach." He pinched the piece and it fell to dust.



Miller wheeled like a panther.... From under his coat he jerked out as strange a weapon as the one he had just demonstrated, and pointed the thing at us.

"Now let us consider the other side," he went on; "the constructive possibilities in such a device.

"It could be used in all sorts of mining and other work where great forces are needed. But I have decided to use it as a destructive measure only." He chuckled malignantly.

"Surely," I said in astonishment at what I had seen, "there is something which will combat such a power."

My ejaculation had been an involuntary one, but if I had suddenly touched off a cannon, the effect would not have been more startling.

Miller wheeled like a panther; more speedily than I thought possible for a man of his size. From under his coat he jerked out as strange a weapon as the one he had just demonstrated, and pointed the thing at us. In his eyes there was a look of insane rage.

When he wheeled Jim had reached for his automatic; but too late. Miller had us covered. "So you found out," he cackled. "You found out about this other weapon, but you're too late. I'll see to that."

It was plain to me that I had snapped the string which had held the man's reason in check, and he was now a raving maniac.

We had no idea as to the power of the weapon with which he was covering us, but we could easily guess from his other demonstrations. One barrel was bell-shaped and made of some white substance. Directly back of the barrel there was a ball of metal three inches in diameter from which protruded a trigger. A pistol grip completed the weapon.

MILLER'S wild laughter continued for several minutes. Then it stopped abruptly, and a rather silly expression crossed his face. "You two are fools," he leered. "Why should I sell to the United States Government, a machine with which I might capture a nation! Haven't you thought of that? Why should I sell for a few dollars the thing which required a lifetime to plan!

While he spoke, the weapon in his hand wavered from Jim to me and back again. I stole a glance at my partner. He was watching the crazed inventor like a hawk; only waiting, I knew, for a chance to use his own gun.

"Before I kill you," Miller went on, "I shall demonstrate to you the power of my little machine. You shall witness a sight such as you have never seen before and probably," here he grinned, "never shall again. You shall see one great force expend itself upon another. It is a terrible thing.

"Now, if you will precede me," he waved us towards the large machine and followed close behind.

From his pocket he took a ball of twine and fastened the end of it to the lever which discharged the sound projectile. Then he unwound the twine for a distance of a hundred yards in front of the weapon. I had a premonition of what was coming, and it sent a shiver down my spine. Jim was watching Miller closely.

"You had best stand a little way off," the inventor suggested, as he pulled in the slack of his string. We moved hastily. Then Miller swung the weapon in his hand from us and pointed it directly at the large machine. I saw the string become taut. At that instant Jim went for his gun, but again he was too late. There was a deafening explosion and I felt myself sinking into the blackness of oblivion. The next thing I knew Jim was bending over me, wiping the dust from my face. In a moment I was able to sit up, and it was then I received the biggest surprise of my life. We were alone in the crater. Miller was gone. The large machine and the laboratory which had stood behind it had also disappeared. I turned dazedly to Jim.

"Where are they?" I asked.

He seated himself on a stone and lit a cigarette before answering. "I don't know," he said slowly, as he flipped the match away, "but I have my suspicions. I was knocked cold by that explosion just as you were, but I didn't stay out so long. When I came back to consciousness, I was dumfounded. But this is the way I've figured things out: Miller pulled that string and set off the big machine at the same instant he pressed the trigger on the little one. Those two engines of destruction simply annihilated each other. The little weapon blew the house and big machine off the map, and the big one removed Miller. Why those cliffs back of the house didn't come down on us, I can't understand. I'm fairly certain something went wrong with Miller's plan, and we're the ones who ought to be tickled pink about it.

"If you're able to walk, we'd better get started back toward civilization."

I got to my feet and found I was not hurt as badly as I had imagined.

"We must notify the authorities as soon as possible," I remarked.

Jim smiled. "If you do, you'll be laughed out of town. Just try and convince anyone that what we've seen today really happened. Bring them out to this spot and show them this hole in the ground. Then try to explain. You'll probably end up in the psychopathic ward of some hospital."

I was bewildered. "Then in heaven's name what shall we do?" I cried.

"First of all," Jim said, "we'll see if we can get out of this place alive. If we manage that, we'll keep as silent as a couple of clams."

"But the Jap chauffeur?" I suggested.

"He'll come back here, all right. But you don't know Orientals as I do. He'll take a look around here and then, not being able to find anyone, he'll go on his way, one first class automobile to the good."

"It's O. K. with me," I agreed. "Let's get going."

As we passed the spot where the house had stood I stooped to pick up a couple of chips. When I pinched them, they crumbled, just as the stone had done.

How we ever managed to get out of that place, I do not know. However, we finally reached the main road, hardly able to speak for want of water, and our eyes half blinded by the terrible glare of the sun. A passing car picked us up and took us into Balarat. The driver looked somewhat askance at us, but said nothing. The next day we were able to go on to the city.

IT has been two years now since we made our trip into Death Valley. At times I catch myself wondering if the whole experience was not the product of some bad dream, but the occasional talks Jim and I have about it assure me of its reality. For a time after we returned to the city, we advertised for relatives of Mr. Miller, but none appeared. Neither have we heard anything of the Jap chauffeur. He, as Jim had put it, probably went on his way rejoicing, one automobile to the good.

THE END

Beyond the Green Prison

By A. Hyatt Verrill

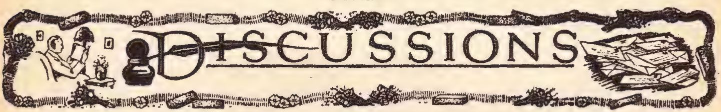
(*Continued from page* 1079)

the world as she had been in Urquin, and I felt that I must get back to civilization in order to publish the results of my discoveries and to set at rest all rumors that, unquestionably, had been spread regarding my disappearance. Moreover, I had many business matters to attend to, and I must admit I was most anxious to let Mosock Nina see civilization and I was even more anxious to let civilization have the pleasure of seeing her.

So at last we bade farewell to the valley and to our beloved freinds and, by easy stages, made our way to a little interior town. During our stay in the valley the people had taken to weaving cotton and we both were attired in cotton garments, so that our appearance aroused no comment. But my wife was filled with wonder at the strange people, the houses, the clothes worn, and she was thunderstruck at the first railway train she saw. Still she had heard from me of all these things, and hence did not regard them either as supernatural or dangerous, and with the quick adaptability of her race she soon accepted everything as a matter of course. In due time we reached Quito, where I secured funds from friends, (for I forgot to mention that my abandoning peons had helped themselves to all the money and valuables I had had) and having purchased suitable clothes and other necessities, we made our way to New York.

A narrative far more lengthy than this could be written of my Urquin wife's experiences, surprise, wonder and impressions of our teeming city and its denizens. But that has no place in this tale. And now I must close and accompany my wife, who is waiting for me to take her to the top of the Woolworth Tower. I believe it is the only thing she has not yet "done" and she insists upon gazing across Manhattan from that lofty perch before we embark on the ship that sails for Guayaquil tomorrow, and which will carry us on our way towards that distant secret valley wherein are Naliche, Ramon, Melik, and all the others—yes, even the burro, the dog and benignly-smiling old Wira Kocha.

THE END



DISCUSSIONS

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

ARE THERE OTHER INHABITED WORLDS THAN OUR EARTH?

Editor, AMAZING STORIES:

I have read many interplanetary travel stories and enjoy them. That authors now inject science but makes them the more plausible and interesting. I am the last to pick flaws in their methods. Let the author write his own story. Primarily we read fiction because it entertains or interests us. If we do not like a story, we need not read it. Personally, I like the so-called "different stories."

History shows that in the past, many a wild tale has been a prophetic one. Tales have been written of flying air boats, submarine travels, projected pictures, voices, invisible rays, in the days of practical witch-craft. These are now accepted as a matter of course. Who knows what germ of future truth lies in the scientific stories of today, an unrecognized prophecy?

However, if the scientists and "astronomists," are correct, interplanetary travel may never be accomplished by the physical body, or mechanical inventions. They tell us that beyond the shell surrounding earth, vast space, is computable in light years, is a seething mass of stardust, atoms, fragments of worlds, suns, stars, exploding and burning worlds. It might be likened to a vast flowing ocean of fluid lava in which spin the planetary bodies and fragments, forming new worlds, perhaps as even ours may have been formed, and also destroying old worlds. Before telescopes came earth people believed only the sun, moon, and visible stars existed, but as stronger lenses developed, it was to learn that beyond these were millions more, greater than our familiar heavenly bodies, and beyond these still more millions, and on and on *ad infinitum.*

They tell us, if it were not for this shell surrounding earth, our planet would be instantly destroyed by the rain of bodies, stars, comets, traveling at lightning speed to earth's attraction. At times the shell is penetrated so scientists now explain the meteors, and the "Rain of Stars," which fell many years ago.

If distance and motive power could be overcome, once leaving the protecting shell, the vehicle would be completely demolished.

It is interesting to speculate on the possibilities of messages through the medium of rays or waves. Will it ever be accomplished? At present, these two agencies are limited to machinery at both ends, but we are only barely acquainted.

With them as yet, new invisible rays and waves have been discovered, but seemingly, we are as yet in the dark as to what use may be made of them. Too much effort is being spent on discovering or rather uncovering destructive rays, death-dealing rays, for use in wars that would be better expended in developing constructive rays.

Knowing as we do, that all these greater-than-earth worlds, with their own surrounding planetary systems, exist, is it not somewhat absurd for man to imagine that his is the only inhabited world? Meteors under microscopic examination have proved to consist of exactly the same elements as earth is composed of. Is that not significant?

Another unsolved riddle is, does thought travel on waves? What is mental telepathy? Is it accomplished because thought can, or does travel on waves or rays? Few today would attempt to deny mental telepathy, but no one really explains it. Is it another unknown wave, waiting in the dark for science to uncover, a means of more perfect communication, a path-finder perhaps, to other worlds? Who can tell?

Marie La France,
335 14th Street, Portland, Ore.

(We would suggest to all interested in the subjects of other worlds and of the constitution of the Universe to read Professor Jean's monumental work on the universe. There are two things which will impress the reader. One is the great emptiness of the universe; the other, the probable paucity of inhabitable worlds. We may assume creatures who could live in the heat of Mercury or the ultra-icy cold of Neptune, but this is mere imagination. The vast majority of the stars are hot, many intensely so—few can be considered habitable by creatures such as our Mother Earth supports. Telepathy so far is unproved—coincidence may have given apparent effects of it.—EDITOR.)

MENTAL TELEPATHY AND THOUGHT TRANSFERENCE

Editor, AMAZING STORIES:

I am greatly interested in the progress and development of the human race.

I have been an ardent and interested reader of AMAZING STORIES since its first appearance on the fiction market, inasmuch as I find much to please me in its pages.

It is my firm belief that the human race, as a whole, can go a long way yet in the scale of evolution, both physically and mentally.

It seems to me that you are a trifle too skeptical in your views of mental telepathy and thought transference.

I have many times had the peculiar experience of knowing just what a person was going to tell me, before he (or she) expressed his (or her) thoughts vocally, and furthermore, without any clue to the person's thoughts obtained from previous, or foregoing conversation.

Allow me to cite a little example of my meaning: While making a long business trip some few weeks ago, I struck up a speaking acquaintance (as travelers do), with a young man from Los Angeles. We discussed many topics to vary the monotony of our trip, and were amusing ourselves by guessing the ages of the various passengers on the bus, when suddenly I found myself asking my young acquaintance if he would not be eighteen in July, 1929. He looked at me in a startled way and then pulled a birth certificate card out of an inner coat pocket. Much to my surprise, upon looking over the birth card, I found I had guessed his age correctly, although I had known him only an hour, and had never seen the card before, nor had he told me his age.

I was truly as much surprised as he, when I found I had, through some mental or subconscious mind process, ascertained his age so correctly.

I suppose this will in no way alter your innate skepticism, but if your disbelief is as strong as my belief, I can understand the reason why.

I believe that thought transference is a faculty,

(*Continued on page* 1090)

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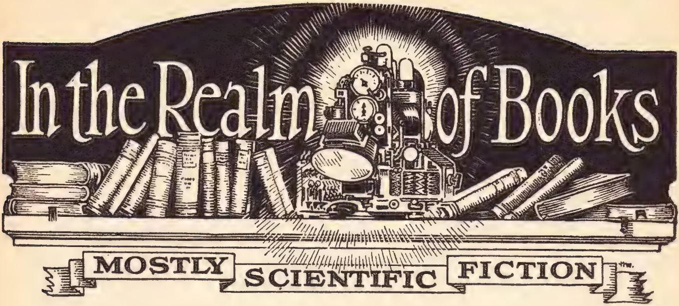

Professor Challenger Again

"The Maracot Deep and Other Stories," by Arthur Conan Doyle. Published by Doubleday, Doran & Co., New York—$2.00.

THE lesser portion of this book contains three short stories: the story of "Spedegnes Dropper," which cricket enthusiasts may possibly be able to enjoy, the "Disintegration Machine" and "When the World Screamed," re-introducing Professor Challenger, who was the chief character in "the Lost World." In the "Disintegration Machine," Prof. Challenger very cleverly prevents the sale of this terrible weapon to Russia, by disintegrating the inventor, thereby destroying the secret most thoroughly, since it existed only in the inventor's brains. In "When the Earth Screamed," Prof. Challenger proves his theory that the Earth must be considered a sentient being. After a shaft five miles deep has been sunk, the Earth resents this interference by a very violent eruption accompanied by an enormous noise, sounding like the screaming of mortally wounded horses.

"The Maracot Deep" is easily the best of the four stories comprising this book. A famous scientist, Dr. Maracot, with three companions descends in a steel diving cage to a great depth. A monster of the deep bites the steel hawser in two and the cage sinks five miles deep to the bottom.

Just when they are about to suffocate they are rescued by a party of subsea dwellers, descendants of Atlantians, who once peopled lost Atlantis. This race living on the Ocean floor has conquered the environment and has advanced far in all kinds of science. With the help of this science they work out a way of returning to the surface world again. It is a very ingenious and plausible tale full of fantastic adventures and hair-raising thrills, except perhaps towards the end of the story where Doyle's leaning towards the psychic overwhelms his science—C. A. B.

Some Prehistoric Tales

"The Wonder Stick," by Stanton A. Coblentz, published by the Cosmopolitan Book Corp., New York—$2.00.

"The Sons of the Mammoth," by Waldemar Bogoras, published by the Cosmopolitan Book Corp., New York—$2.00.

"The Day of the Brown Horde," by Richard Tooker, published by Payson & Clarke—$2.50.

TALES of prehistoric men and animals antedating written records have always had a peculiar fascination for me. It seems to me exceedingly interesting to read about the life of early man, to learn how he satisfied his need for food, drink and sleep; how he defended himself against heat and cold. It fascinates me to watch him shaping and improving his primitive weapons, to see how, out of sheer necessity were born the beginning of industry and transportation, leading up to the domestication of animals, the beginning of agriculture and the formulating of laws and customs which are still alive today.

Four books have been published recently, all worth while reading, and comparing very favorably with the earlier masterpieces: "The Story of Ab," by Waterloo, and "Before Adam," by London.

Three of these books are sectional, that is the action is laid within a somewhat narrow circle, whereas the book, "When Mammoths Roamed the Frozen Earth," by Heinrich Schutz, published by Jonathan Cape & Harrison Smith, covers an uncertain region in Europe, dominated by a glacier. It is translated from the German, by Frank Barnes. It will fascinate boys and adults alike, as a story, although it is at the same time instructive, for it is founded on accurate scientific data.

"The Wonder Stick," tells us the story of Ru, a despised dreamer, and how he finally became the "Eagle-Hearted," how he invented bows and arrows and as saviour of his tribe, finally became its chief. The book is well written, but the poor illustrations do not match the high quality of the story.

The next, a translation from the Russian, by Stephen Graham, is a scientific reconstruction of the Stone Age man, showing how he lived, loved and hunted. A very interesting episode is the appearance of a live saurian, who makes life miserable for the tribe in question.

The last is easily the best of the prehistoric tales. It is of particular interest to us, since its action takes place in North America, in a valley which now forms the upper end of the Gulf of California. There lived a tribe of troglodytes, chieftained by Ag-Tar, the Old Man, whose decree demanding that all 6-months-old children must be able to walk and eat meat or die leads to his ultimate destruction. Kaa, an unnamed child, is underdeveloped and is doomed to die, but is saved by his mother, who, after an adventurous and perilous flight, finds refuge in a distant cave, where Kaa grows up into a strong man. The spears which he invented later saved the tribe from the ravages of saurians, which the tribe has been worshipping as gods. After Ag-Tar has been killed, Kaa becomes Old Man and abolishes human sacrifices and the killing of the weak and old. Volcanic upheavals tear the land of the tribe to pieces, but under the leadership of Kaa they reach a safe locality where the tribe continues to dwell in peace and plenty.

The theme is well handled throughout and the book holds the reader's attention from beginning to end.—C. A. B.

"Atlantis"

"The Prince of Atlantis," by Lillian Elizabeth Roy. Published by the Educational Press—$3.00.

IF a future generation should discover physical records of lost Atlantis, covering an advanced social structure which Plato called the Ideal Society and also covering a very highly developed science, having produced flying machines, atomic motors, radio, telephone, etc., these records might very easily resemble the text of this book. It reads as though the author had used actually existing records, instead of only a splendid imagination. The story is vividly interesting. The characters are alive and the Prince of Atlantis ranks easily with the many fantastic novels written around the meagre positive knowledge existing of the "Lost Continent."

The maps gracing the inside covers are as near authentic as they can be. They are based upon the researches of the Prince of Monaco and his charts of the oceans.—C. A. B.

Ghosts!

"Shudders," Edited by Cynthis Asquith. Published by Charles Scribner's Sons, New York—$2.00.

This book contains fifteen tales of horror, murder, mystery and ghosts.

All the stories are grewsome enough for anyone who likes ghostliness in large and concentrated doses.—C. A. B.

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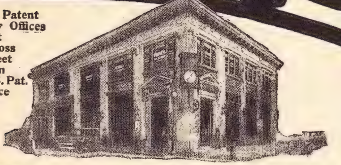

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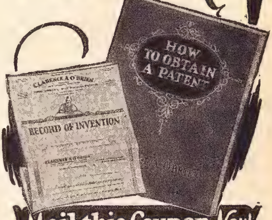

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C. H. Osbourne,
Hotel Margaret, 71 Fourth Street,
San Francisco, California.

(We cannot avoid the belief that the remarkable instances of supposed thought transference and the similar phenomena are so few, that they can be accounted for by appealing to chance or coincidence. The writer admits that he possesses considerable innate skepticism as you call it, although the many wonderful achievements of the past generations tend to remove skepticism and to substitute for it a degree of credulity. But the most healthy feature of all this, it is fair to say, is to develop a good average in the mental processes and make one credulous to a certain extent and increase his receptivity to new ideas. Evolution, of course, cannot be effected by private and personal belief and unbelief. In a sense it goes back 2,000 years at least for its origin. It did not begin with Lamarck and Darwin. Epicurus may be taken as the first evolutionist that we know of.—EDITOR.)

THE VELOCITY OF LIGHT FROM A MOVING SOURCE—BACK NUMBERS OF AMAZING STORIES WANTED

Editor, AMAZING STORIES:

I am writing this for the "Discussions" Department and would like to have a question answered. If a space ship was traveling at one light-speed and a searchlight was turned on at the front and back, would the front beam of light be traveling at two light-speeds and the back beam of light be traveling at no light-speed, or not? I think this would be true, but do not know.

If the front beam of light was traveling at twice the speed of light or the rear beam traveling at no light-speed, then how could there be any light? The same would be true of the lights of the interior. Please answer this question.

I have read the three latest editions of AMAZING STORIES Quarterly and find "The City of Eric" the best in the Spring Edition, "Venus Liberated" the best in the Summer, and "The Bridge of Light" the best in the Fall Edition.

Earl Sugg,
Snow Hill, N. Car.

(The velocity of light is not affected by the velocity of the source according to modern theories. If it were so affected, your space-ship would emit no light in its wake and light at double the true velocity in advance. This it would not do. We have published some letters in our "Discussions" columns from correspondents having back numbers for sale.—EDITOR.)

A BIGGER AND BETTER MAGAZINE

Editor, AMAZING STORIES:

I have been a reader of your magazine for about three years and like it very much.

I wish the author of "Into the Green Prism" would please enlighten us as to how the people of Manabi could live so long. If all things are relative, would not those people have died while they were being watched by Professor Amador and his friend.

This has caused several arguments, so please tell us how anyone less one-thousandth of inch in height could live as long as the average man.

Among the stories I like best are the ones dealing with electric and atomic forces. Such as "The Revolt of the Atoms," "Armageddon," and "The Skylark of Space."

Your covers are fine. Keep up the good work.

I noticed where one of your readers complained about the quality of the paper, saying that it deteriorates quickly, but I have some books that were among the first printed, and they are still in good condition.

Joe Humphreys,
Humboldt, Tennessee.

(The fact that you have read our magazine for three years goes to prove that you consider it pretty good. You will see that your wish for a bigger magazine has been satisfied. We can assure you that you will find it on the road to very great betterment. We wish to keep out all extraneous matter. We wish to give stories and we wish to make the "Discussions" column an important feature. We think they are. It is hardly necessary to consider that duration of life depends on size. Small men live as long as large ones, so why should not the microscopic beings of Mr. Verrill's story have a reasonably long life?—EDITOR.)

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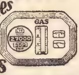

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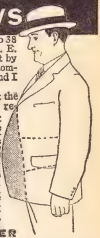

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A BIRD'S-EYE VIEW OF SCIENTIFIC PROGRESS IN AMAZING STORIES

Editor, AMAZING STORIES:

I've been a reader of AMAZING STORIES for a year or two, and I think it is a wonderful magazine. It gives me a bird's-eye view of what our scientists are doing, and new theories to ponder over. I have no brickbats to throw. I read what I like of your stories and those I don't like, I turn past them.

Personally, I don't care for Jules Verne's stories, but if your other readers do, all right, print them. By all means satisfy your readers as far as possible.

I like interplanetary stories, they give me an idea of the plant and animal life that would be found on other globes.

I would like to get a map or drawing of the skies showing the position and also giving the names of stars and planets, especially a drawing or picture of the Solar system. Where can I get some of these and how much will they cost? Do you have them?

Yours for a steady reader of AMAZING STORIES.
Robert Hockaday,
Birdsboro, Pennsylvania.

(The writer has had an illuminating experience in connection with what you say about Jules Verne's stories. We have had several letters highly commending the story which we have been publishing, "The English at the North Pole," with its sequel, both about the polar regions and discovery of the North Pole. One letter stated that the correspondent knew that it was in all the libraries in book form, but acknowledged that he had never read it until he read it in our pages, so that you see Jules Verne, as it is sometimes proverbially expressed, has come into his own again. The Northwest passage, as it is called, alluded to in this story, the way by water from the Atlantic to the Pacific along the northern shore of the American continent, has long been sought for by navigators; since the days of Queen Elizabeth, in fact. It was in the early part of this century that the passage was made as noted in our footnote. It was the famous explorer, Amundsen, in the auxiliary motor boat Gjö, who got through, amid ice floes, channels between the islands and shoal water. As regards your wish for star maps, you can get them from various publishers. We cannot supply them here. We wrote you personally, giving an address.—EDITOR.)

INTERPLANETARY TRAVEL AND ACCELERATION

Editor, AMAZING STORIES:

May I "butt in" with a few criticisms of your editorial in the November issue of AMAZING STORIES?

Dr. Sloane contends that interplanetary travel is in practice impossible because the human body would not be able to stand the strain of the accelerations involved. Now, I have made a few calculations from which it appears that such travel could be arranged in such a way that the strains would not be unendurable and at the same time without prolonging the time of travel unduly.

The great difficulty is, of course, in overcoming the earth's gravitational pull during the first 5,000 miles or so. Since the gravitational pull is inversely as the square of the distance between the centers of gravity of the two bodies—in this case the distance of the space-flyer from the center of the earth—when the machine has reached an altitude of 5,000 miles the gravitational pull on it, and its passengers, is reduced to a rather small fraction, 2/15th of that at the surface of the earth, and may be then regarded as a negligible factor—a normal man weighing about 20 pounds there.

Now, although perhaps gravity and acceleration are not quite the same thing, yet we can regard them as the same, since their effects are similar. If we climb at a rate of 32 feet per second from the earth's surface, we have an effect which is equal to that of earth gravitation in addition to our normal weight, so that we should experience a strain equivalent to doubling our weight. Tests, as well as common experience in raising men vertically from deep mines, have shown that the human frame can stand this strain without injury. Since the strain is necessarily to be more prolonged we may find that in a space-flyer we should have to reduce this somewhat, but there is no doubt that we could stand being lifted from the earth at a rate of fifteen miles an hour Not, be it noted, an acceleration of that, but a steady climb at that rate. As our distance from the earth increased and the gravitational pull became less, we could increase this rate gradually but evenly, so that by the end of the first day we should be about 400 miles from the earth. (We should of course leave tangentially but the forward acceleration would be negligible at

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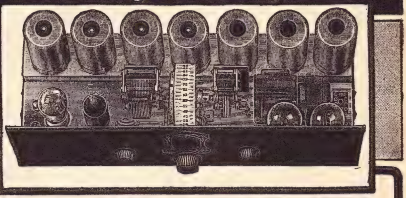

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first.) By the end of the second day we should have reached an altitude of 1,000 miles and by the end of the fourth day, or at any rate the fifth day, we should be at least 5,000 miles from the earth's surface.

Now we may begin to accelerate in the direction of our course, since earth gravity is negligible from now on. An acceleration of 32 feet per second per second would give the flyer a change of velocity such that we should have the same apparent weight as though we were on earth, provided we made the end of the flyer nearest the earth our floor. This acceleration of 32 f. p. sec. per sec., is equal to gravity on the earth's surface so that an acceleration of that amount out in free space would give a similar effect (allowing a little perhaps for the light gravitational pull of the earth and the rest of the solar system). Suppose, since we are not entirely free from the earth's influence, or drag, we put our acceleration at 22 ft. per sec. per sec., which is fifteen miles per hour per second. This at the end of a day (24 hours, rather, since there is now no day or night) gives a speed of about 21,600 miles an hour, or approximately 500,000 miles per day. Keep this acceleration for, say, four days and we have a speed of 2,000,000 miles per day, and during this four-day period we have traveled some 4,000,000 miles on our journey. Now hold this speed by cutting off the power, except for the little required for navigation and residual gravitational pulls. In another ten days we have gone a further 20,000,000 miles and are now 24,000,000 miles from home, or about half way to either Mars or Venus, should one of them be in a suitable position. We have been in all about nineteen days doing this. The second half of our journey will be simply a reversal of the first half. We shall fall on to the other planet with a constantly decreasing velocity after we have reached a distance of about 4 or 5 million miles from its surface, our floor now being the side towards this planet. Thus a journey to either of these nearest planets, which needs a course of about fifty million miles if a tangential start and finish is to be made, will occupy six or seven weeks under normal circumstances. If we wish to go further, say to Mercury, we shall in this case have to begin retarding considerably earlier, since the sun's drag will be appreciable in this region, so that we should expect to take perhaps three months on this trip, and to travel at a somewhat higher rate of speed. In order to reach the outer planets—or rather their moons, since their gravitational pull and other conditions are such as to make landing on them probably impracticable—we should need much longer time, and should probably continue to accelerate for eight days to get a speed of 4,000,000 miles a day. This is perhaps the fastest practicable speed, since at speeds much greater than this relatively to the earth, the Lorenz FitzGerald contraction would become considerable and perhaps prevent greater speeds with the mechanism possible. At this speed it would be a journey of many months to reach these planets or satellites, and we should also have to make a big detour away from the plane of the ecliptic in order to avoid the Asteroid Belt with its great danger of collision with some of the small bodies there.

Thus we see that, as far as acceleration and gravity are concerned, it is quite practicable to reach other worlds. The difficulty is in designing a machine which is capable of doing it, but, with all due respect to Dr. Sloane, I believe that some day it will be done. Thirty years ago, the wise ones of this world scoffed at the idea of man's flying; they regarded Signor Marconi as a madman; and so on down the list. Let *us* be more tolerant and avoid the unwise use of this word "impossible," so that we shall not have to "eat our words."

I am sure that some wise critic will bring forward the argument that, in order to leave the earth at all, it is necessary to attain a speed of seven miles per second. So it is—for a projectile. We are dealing with a machine which provides its own power and which can leave the earth at any speed it desires.

I really must apologize for making this letter so lengthy, but I could not condense it without weakening the arguments.

Just go ahead and publish some more interplanetary stories, many of them are good, and to me they are always interesting.

John L. Burtt, B.Sc.,
Mission City, British Columbia.

(As our correspondent has expressed a liking for Interplanetary stories, it will please him to know that we have quite a number on hand which will be published very soon. You do not explain how you get your figure 2/15. But the point is that man can stand any constant motion through space without harm unless that mysterious Lorenz-FitzGerald contraction comes in, and that it is only acceleration or change of speed which produces an effect

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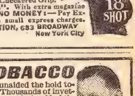

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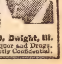

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similar to a change of weight. This change might easily be fatal if the acceleration was positive. There was a time when people were willing to say things were impossible. The pendulum has swung the other way. Now, we are afraid to say that things are impossible. Your very interesting letter is so long and so much in detail that it speaks for itself and really needs no comments.—EDITOR.)

A LETTER FROM DR. MILES J. BREUER

Dear Mr. Barnett:

I am glad that a letter from you with your address appeared in the AMAZING STORIES. I am glad of the opportunity to congratulate you on the sportsmanlike manner with which you took the savage attack that I made on the technical points in your story.

I am writing to you personally with the special purpose of remonstrating with you about one thing. You say: "I assure him (meaning myself) that I shall in the future avoid subjects that require a knowledge of practical bacteriology."

Now, that would be just too bad if you did that. You are too skilful a story writer and get out too good a type of stimulating and original story, to permit your work to suffer because of such a small matter. There is a much better way to get around the subject.

You have excellent and original ideas. They ought to involve bacteriology and other technical matters. When they do, get some help on them from some technical man who knows the bacteriology and cannot write stories. I wrote a story (which has been accepted by AMAZING STORIES), involving some technical points in artillery, about which I knew nothing. But I have a friend who was a lieutenant in the field artillery during the war. I submitted my problem to him, and he was immensely interested in mapping out my material. Then when a draft of my story was on paper, I submitted it to him for final censorship. In that way I secured soundness in my artillery section, and made a stronger friend than ever. He was very much complimented because of my confidence in his knowledge of artillery.

Wouldn't it be better for you to do that, than to deprive readers of your ideas for stories which might involve bacteriology?

After all, no one person can know everything. And the technical folks always seem to be glad to give assistance.

I should be delighted to hear from you personally in case you either agree or disagree with this view. In fact, I should be more than delighted to be of friendly and complimentary service to you in helping with the technical points of any of your stories which involve such technical matters as I am familiar with.

Cordially,

Miles J. Breuer, M.D.,
Lincoln, Neb.

(Although this letter was addressed to Mr. Barnett, it is so very excellently put and Dr. Breuer's good spirit is shown so clearly that we are taking the risk of publishing it even without his permission. Dr. Breuer, who is a very high authority in his special field, has long been, and we hope always will be, one of the favorite contributors to AMAZING STORIES, and his letter shows a truly sportsman-like spirit.—EDITOR.)

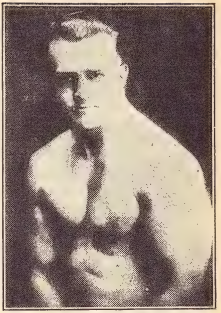
A LETTER FROM AN ADVOCATE OF THE PREROGATIVE OF YOUTH

Editor, AMAZING STORIES:

I have been a constant reader of this magazine and have a file of them—every issue for the last four years. In a recent "Discussions" I saw the letter of Mr. Vernon and was "exceedingly wroth." He, in his sarcastic letter denouncing sarcasm, wishes to quell the budding thirst for knowledge in the younger generation—youths who will form the nuclei of tomorrow's citizenry. Let him ridicule with his own expansive vocabulary—the same trait is in Mr. Saunders. Let him remove the beam from his own eye ere he goes mote-hunting.

Now will Mr. Vernon, having "reached the age of discretion" sit back and listen to reason. Is he humiliated when subjected to the criticism of the younger generation to whom are manifested faults unseen by the octogenerians of his class? Surely he is not one of those self-sufficient ones able to forego all criticism. Does he not realize the value of criticism, either censure or approval, from all readers, be they male or female—sixteen or sixty? Does he wish to limit this column to a few old fogeys with one foot in the grave, whose sole interest in Science is good cure for rheumatism, patriarchs that should abdicate and allow the world to progress without them?

My ancestors fought for the privilege of free speech and I do not intend to sacrifice it merely



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There are thousands of men like Jones. They, too, could be happy, successful, respected and loved. But they can't seem to realize the one big fact—that practically everything worth while living for depends upon STRENGTH—upon live, red-blooded he-man muscle.

Everything you do depends upon strength. No matter what your occupation you need the health, vitality and clear thinking only big, strong, virile muscles can give you. When you are ill, the strength in those big muscles pulls you through. At the office, in the farm fields, or on the tennis courts, you'll find your success generally depends upon your muscular development.

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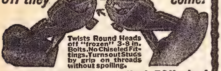
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because an "intelligent person of forty" asks it as a "personal favor." One can readily believe this a grammar school periodical, when one observes the style of letter written by these "intelligent people of forty."

As to that toy phrase, let Mr. Vernon be assured that never again will youth be held in check by the narrow-mindedness of people, overcome by misplaced privileges and authority.

In the long time I have read AMAZING STORIES I have found no story, no drawing without merit. Even those in the style of "The Roger Bacon Formula" were scientific to such an extent that their very dryness was interesting. But I prefer the interplanetary type such as "Around the Universe" by Ray Cummings. It was well written, had an ingenious plot, gave good descriptions and corresponded well to the title—AMAZING STORIES.

R. H. Thomas,
Library Park Hotel, Detroit, Mich.

(No one wishes to quell the budding thirst for knowledge in the younger generation. The "peculiarity of the younger generation," as you term it, is that they are apt to be very positive in their ideas. Their minds seem to be inelastic. They have not yet had all the shocks and disappointments which we older people have had and their criticisms therefore are apt to be rather arbitrary and rather severe. But, we have a large number of young readers, and we have received some astonishingly good letters from them which we always take great pleasure in publishing. We are certainly the advocate of youth, but it would be kind of you, we think, not to abuse the older generation as you are inclined to, because some of these days, if you will have a long life, you will find yourself growing old and then you will feel rather strange in looking back and seeing the letters you have written, if you have written many like this one, abusing in a sense, the older generation. They cannot help being old any more than you can help being young. So practice moderation in your criticisms. AMAZING STORIES which you compliment so highly in the concluding paragraph of your letter, is not edited by a young man either, so here we are bringing the old and the young together and we are only too delighted to feel that our efforts have been pleasing to a young reader as we understand you to be. You have our very best wishes for your future advance in science.—EDITOR.)

THE SECOND, THIRD AND FOURTH DIMENSIONS

Editor, AMAZING STORIES:

I have read with great interest the many stories in your publications which deal with the so-called "fourth dimension." While I do not presume to state definitely that the fourth dimension is nonexistent, still I would like to correct the erroneous statements generally used by your authors in explaining the fourth dimensional theory.

It seems to be generally conceded by writers of scientific fiction, that the correct thing in fourth dimensional tales is to have one of the characters either moving himself bodily through the fourth dimension or moving some other fourth dimensional object with a three dimensional handle, such as the now famous "Hyper-Forceps" of Mr. Olsen.

Let me point out, using Mr. Olsen's own method of two-dimensional comparison, the fallacies in the theory of any three-dimensional being moving in or working with the fourth dimension.

It is stated that every object must have three dimensions to exist. Such being the case, every "Flatlander" must have three dimensions, whether or not he realizes it. Supposing some eminent two-dimensional scientist were to become convinced that all two-dimensional objects must have a third and hitherto unknown dimension. By placing two dimensional objects one upon the other he could eventually construct an object with a third dimension at right angles to the two known dimensions. But this two dimensional being could not move in the third dimension to place the two dimensional objects one upon the other unless he had a three dimensional tool with which to work.

Since he could not move in the third dimension without first obtaining a three dimensional tool, and since he could not obtain a three-dimensional tool without first moving in the third dimension. . . . The conclusion is obvious. No two dimensional being can move in the third dimension or work with any three dimensional object without assistance coming in some manner from this same third dimension.

Likewise a three dimensional being, in order to obtain an object with a fourth dimension at right angles to the other three must work with three dimensional objects, placing them one upon the other by moving them through the fourth dimension until he has a four-dimensional tool with which to work and he is certainly incapable of producing

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a four-dimensional tool without motion in the fourth dimension.

Therefore, Mr. Editor, I present the following indisputable fact: No three-dimensional being can move in the fourth dimension or work with any four-dimensional tool unless he is the recipient of aid from the fourth dimensional world.

Karl Myers,
Wildwood, N. J.

(Your observations are certainly logical and seem to invalidate the "famous" as you put it, hyperforceps of the story you refer to. As we look at it the fourth dimension does give a good basis for scientific romance. It is at once surprising and even interesting to know how seriously the mathematical conception, termed the fourth dimension, has been taken by many people. Some have even gone to the extent of writing books about it. The "tessaract" has been speculated about and pictured, as if it was a chance for the everyday reader and writer to speculate about this recondite and mathematical subject, when the most gifted scientist does not have a tangible theory about gravitation—something whose existence we know, but whose cause we are ignorant of. It is well not to take the fourth dimension too seriously, except where it belongs, which is in higher mathematics.—EDITOR.)

COMMENTS ON SOME OF OUR STORIES; THE INTERIOR HEAT OF THE EARTH; THE PAPER OF AMAZING STORIES

Editor, AMAZING STORIES:

I have read the October AMAZING STORIES from cover to cover, and find much of interest as well as some things the other way.

Your story "Death from the Skies" was very interesting, but has some flaws that cannot be neglected. Finding the origin of the meteors by tracing their trajectory as described in the earth's atmosphere might be possible, but as for predicting the landing point of the projectiles, that is not described at all. The meteors are not luminous until they reach the earth's atmosphere, and hence cannot be seen nor can any idea be gained as to where they are to fall. Mr. Verrill also neglects to explain why it was that a specimen of the meteors would ascend with the current on and descend when it was turned off, while the large meteors kept on going away from the earth when the current was turned off. With all these flaws, the story was very interesting.

"One Leg Too Many" was not so interesting to me. It was well written, but I do not believe that technicalities have any place in a magazine meant to be scientific. I do not care, in general, for stories having to do with surgery, biology, or allied subjcts. I prefer things purely scientific with a good scientific explanation for everything. I like stories of unknown places, unusual happenings and such.

"The Secret Kingdom" is fairly interesting so far. I think it a little off the line of scientifiction, being more of an adventure story, but later instalments may prove more interesting.

I liked "The Chamber of Life" very much. It was an interesting and unique way of presenting the author's idea of an ideal life. As a story it was remarkably interesting.

The idea of having a valley heated by steam from the interior of the earth in the midst of the Arctic snows is quite an original idea. I was expecting some explanation of the surprising stature of the Arctic giants, however, which was not forthcoming. It was interesting to see science overcome tradition. I think this demonstrates the spirit of the present age. The description of the wonders in such a queer land were quite interesting, but the introduction was too long before the real experiences and description of the queer land start. He could just as well have "cracked-up" next to the canyon and had the real story begin immediately. Scientific writers should learn that stories of this nature are never improved by a long introduction, but quite the other way.

If you would improve the make-up of the magazine, I suggest that you improve the quality of the paper in the first place.

Herman L. Danforth,
319 Oakwood Ave., Webster Groves, Mo.

(The part of this letter which really calls for comment is that where the writer refers to having a valley heated by heat from the interior of the earth. This brings up that strange fact, that there is so much heat in the interior of the earth, that coal and oil and heating substances could be wiped out of existence if we could only tap the enormous reservoir of incandescence that is present not so many feet below us. The paper of AMAZING STORIES is a rough surfaced paper, which is exceedingly good for the eyes. Highly polished surfaced paper is opposed by oculists, as its dazzling effect gives eye-strain.—EDITOR.)

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A VERY SENSIBLE LETTER OF CRITICISM, AND ALSO COMMENDATORY OF OUR EFFORTS

Editor, AMAZING STORIES:

As most of your correspondents seem to jump right into an unanæstheticised vivisection of your magazine and, in their fervid imagination, literally tear it to pieces, I suppose I might as well follow the general plan of attack.

The cover seems to draw more Jovian lightning than any other feature. I personally think they are a "wow." They fulfil every function of a magazine cover. You enter a drug store; suddenly livid color and weird design sneak up and sock you in the eye. You focus your eye on this arresting phenomenon, subconsciously and reflexly. What are these three black rhombohedrons with the cruciform windows? These "Baker's Chocolate" shaped tri-propped what-nots, bask in the beams of myriad search lights, yellow-cored at start, carried by planes and in the foreground a tri-propeller ship bearing turbo generators projects a ray which paints destruction on the nearest what-not.

If scientifically inclined, you are at least interested. Curiosity seizes you. The dynamic symmetry, *plus* unanswered questions as to what's what, assails you.

This is the September number, and if you are interested in "Scientifiction" you buy it. If you do, you are a regular subscriber (because the inside beats the cover for interest). If not, you never would buy it. One look at the picture on the September number tells you more of the "guts" of the magazine than any title, such as Scientifiction, printed in letters one foot high.

Now as to the stories. I like one, you like another. Why? Environment *plus* what we do for a living. As a "scientist," engaged in scientific work all day, I find relaxation in stories that follow known science exactly and rigidly to the limit of the known, and soar at the end of the runway into the unknown along pseudo-scientific lines.

"The Red Peril" is one. We may fight a bacteriological war, not necessarily with the U.S.S.R., within the next twenty years. I hope not, as I would go as an Artillery officer. Everyone hopes not. Now as this story progresses, it leaves the "present possible" and, on scientific basis, enters the "future probable." Now as a "scientist" I know that an alternator with an infinite cycle to produce an 0 wave length is "present impossible."

This does not annoy me, I bought the book for scientifiction. Now praising one, shall I cut another story's throat? I don't like "Cold Light," "The Moon Woman," "The Young Old Man," "The Coral Experiment." Not enough science, too much hot air. Others feel the other way, no doubt rightly. I lent a bacteriologist, who is a friend of mine, the September number and he enjoyed both the "Red Peril" and the "White Army." "Microcosmic Buccaneers" opens new vistas of thought. Impossible? That's a word I don't use, although if any story was ever improbable this one is. What of it? I like it.

Your duty is to keep your stories ever on the frontier of science, a corona stretching into the unknown. Let's talk about "gravity screens" (a "present impossible"). Let's assume as "Professor Olsen" (of Red Peril) states, a screen of infinite density stops gravity; an electromagnetic wave of (?) wave length. Mr. Tulane in the "Dimension Segregator" makes this screen by cooling iron to absolute zero, whereupon the electrons and protons remain in contact due to some "mysterious" attraction. Lead is a Swiss cheese to this stuff. Would this cause our atmosphere to leave us? I think not. Gravity is the attraction of every particle directly as the mass, inversely as the square of the distance. Suppose we have a mile square gravity screen. And our earth as the "home team" and the moon (our strongest tidemaker and attractant) as opponent in a celestial tug of war with the fickle atmosphere as a prize.

Diagram it in your mind, in a position most favorable to the moon (and the gravity screen); considering centrifugal force at the equator on the moon's side, and the expansive desire of the gas. The screen covers a very small part of the earth's surface. The earth is very near, the moon far. The moon is less massive. Now for each molecule of air the screen only screens matter in a conoid (or pyramidoid if the screen is polygonical) of which the molecule is the apex and the "masked area," or area in which matter cannot attract the particle comprises a frusto-conoid or frustro pyramid stretching to infinity, and the surface of which is the locus of a circumnavigating line tangential to the periphery of the screen and passing through said apex. Each particle of matter,

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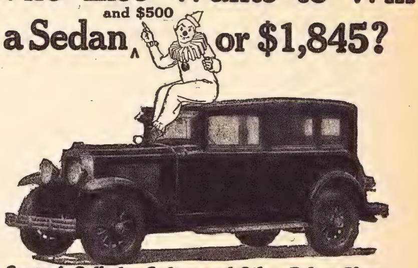

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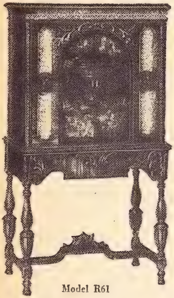

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not in this, attracts it. And as we leave the earth, we finally reach a particle that has most of the earth pulling it back and a less mass at a greater distance, the moon, in opposition.

The problem resolves itself into proportion and size. If the screen is big enough, the moon big enough and close enough, the rotation of the earth fast enough, etc., the air leaves. If not, we keep it in spite of a gravity screen.

And to make it leave you need a gigantic screen of continental proportions in my opinion. This takes no account of Huyghen's principle or the ability of waves to reclose on passing a screen.

More power to you. You have a fine magazine.

M. A. Ryan,
Washington, D. C.

(This well thought-out letter tells its own story. It is written by a scientist, who knows whereof he speaks, and his statement that he enjoys our magazine and finds relaxation in our stories of the impossible (at the present time remember) is a true gratification to the editors. The analysis of a "gravity screen" is interesting. But our friendly critic does say that we "have a fine magazine." We are lending every effort to make it so.—Editor.)

A LETTER OF INTERESTING CRITICISM

Editor, Amazing Stories:

Though I consider that the "Discussions" department is a useless waste of space, I am compelled to write this letter to tell you of my appreciation. From the time that Amazing Stories first came out until about three months ago, I read every copy that I could get hold of.

Then, growing disgusted with the monotonous round of interplanetary stories, stories of the future, etc., I entirely stopped reading them. Yesterday, feeling in the mood for a little scientifiction, I stopped in at the store and bought a copy of the October Amazing Stories. I was surprised—need I say delightfully—to find the whole tone of the magazine changed. The first thing that I noticed was the cover. How different from the lurid, glaring covers of the former copies. Let's hope that it stays that way and doesn't revert to the former garish type.

My joyous approval met with a slight setback when I came to the illustrations of the first story. However this was more than made up for by the other illustrations, including the cover. If these covers continue, I will be able to read the magazine without first tearing off the cover. Whenever I try to get my friends to read Amazing Stories they take one look at the cover and laugh at me for reading "trash."

Here comes another bouquet, this time for the story, "The Chamber of Life." Really, this story is almost intellectual and it made a deep impression on me. It was worth the cost of the whole magazine. I also enjoyed the story, "One Leg too Many," immensely.

On the whole, Mr. Editor, I think that if you keep up the good work and run more stories and covers like those in the October issue, the magazine will be improved one hundred per cent. I know that if you do this I will subscribe and get as many other subscribers as I can.

C. S. Wheat, Jr.,
3211 W. Grace St., Richmond, Va.

(You probably do not know that many of our readers turn to the Discussions Department first of all when they open the magazine. It is highly appreciated by a great number of our readers. Such letters as yours are very welcome. Exactly the stories which you specify as not pleasing you are those which please our readers greatly, interplanetary stories especially. If you will look through our discussions column you will find that our cover illustrations are now quite popular and very much liked. Perhaps we ought to be glad that we got in one of the stories which in your words is "Almost intellectual." For back numbers, address our Circulation Department. We are giving a great deal of attention to our art department, and now have artists such as Wesso and Morey on our staff, men who are true accessions.—Editor.)

AN ELEVEN-YEAR-OLD CRITIC, PERHAPS A LITTLE SEVERE

Editor, Amazing Stories:

This being my first time writing to you, I will make it short and with one criticism.

You remember when one of the Prags in "Microcosmic Buccaneers" asks Grajon (Heck, there I go forgetting again! But it was Grayson or Ninott), where they came from, well, he replied that his world was so large that the whole universe of Pra was a fraction of an inch across. Well, how could it be that distance when a grain of sand is but a

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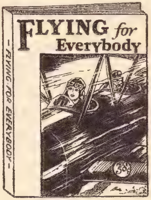

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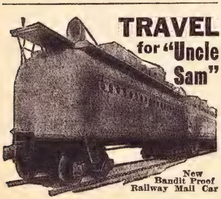

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fraction of an inch across and the universe is way yonder smaller than the grain of sand.

However, even if I am only 11 years of age, I like Amazing Stories.

Stanley Robertson,
Athens, Ga.

(Your letter is not very clear, but we are glad to put you into our "Discussions" column, and shall watch for more of your valuable comments. And above all, we are glad that you like Amazing Stories.—Editor.)

OUR NOVEMBER ISSUE COMMENDED —THE ARTIST PROBLEM—THE SIZE OF AMAZING STORIES

Editor, Amazing Stories:

I would call the November issue of Amazing Stories an all-star issue but for two things. They are the interior illustrations and the style of the story titles. I could hardly ask for better cover pictures than those on the last three issues of Amazing Stories. If the illustrations were as good as the cover pictures they would be O. K. I like the old style of story headings better than the present ones. You spoil the pictures by putting part of the titles and stories somewhere on them. As for your artists in the November issue, Wesso is the best one, and Morey isn't so bad, but Bob Dean, McGerr and Wallit are not so good.

Why have you decreased the size of Amazing Stories? It is at least a quarter of an inch shorter than usual. I noticed this some time ago. You are improving on your stories, except for "The Secret Kingdom," which has no place in a scientific magaine. In my estimation "Microcosmic Buccaneers," by Harl Vincent, was the best story in your November issue.

What happened to those two mastermen of scientifiction, A. Merritt and Ray Cummings?

Jack Darrow,
4225 N. Spaulding Ave., Chicago, Ill.

(It is hardly fair to criticize artists so severely, for each one has his own specialty, and it is not too much to say that several of the last issues of Amazing Stories have been in a sense devoted to finding the best artists to illustrate stories of the very definite type which we publish. Mr. Wesso, we feel, is one of our absolute stock illustrators and Mr. Morey bids fair to be the same. Bob Dean is excellent in anything in the shape of humor, but of that, of course, we give comparatively little. The real size of Amazing Stories has not been reduced. The type page has been constant. As a matter of fact, you have probably noticed that beginning with the December issue, we added 16 pages to the magazine.—Editor.)

AN OLD-TIME FALLACY ABOUT THE ROCKET OR ANY REACTION ENGINE

Editor, Amazing Stories:

I was very much interested in your editorial in the November issue of your magazine, regarding interplanetary travel.

You state that a rocket can be propelled in a vacuum. To prove this, you state that "the air has nothing to do with the motion of a rocket and nothing to do with the recoil of a gun except to act as a retarding force." Inasmuch as I am not a scientist, I hesitate to flatly contradict your statement, but I wish to say that rifles and rifle shooting is my hobby and I have thereby learned that this statement of yours is slightly in error.

The velocity of recoil of a rifle is due to the reaction of the expanding powder gases upon the projectile, and upon the air. The primary phase takes place while the projectile is moving through the barrel; the secondary phase is caused by the escaping muzzle blast striking the atmosphere and forcing the rifle backwards. Velocity of recoil, due to the second phase, has been found, by use of the Sebert velocimeter, to be three-tenths of the total velocity of recoil.

Proof of this secondary phase can be found in the use of the Cutt's Compensator; a device attached to the muzzle of rifles. Instead of allowing the escaping muzzle blast to force the gun backward, the blast is re-directed and forced to actually pull the gun forward. Further proof can be found by cutting off the barrel of the Springfield rifle, or similar ones. With the service barrel length of 24 inches, and a charge of 49.5 grains of du Pont I. M. R. powder No. 1147, behind the 172-grain boattail bullet, the recoil is fairly negligible. Retain the same charge and reduce the barrel length to 18 or 16 inches, and the recoil becomes very severe, although the gun will not develop the same muzzle energy as before. As barrel length is reduced, the powder gases are still expanding at the muzzle, instead of having a reduced pressure. These gases, still having a high velocity, strike the air and

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force the gun backwards. Due to reduced barrel friction and time, the primary recoil is not as great, but the secondary phase more than makes up for it. Slap on a Cutts Compensator to re-direct the muzzle blast, and only the primary phase will be felt. The air therefore plays a large part in assisting recoil.

I cannot see how a rocket will work in a vacuum, inasmuch as there is nothing for the escaping gases to strike. Fire slow dynamite on a rock, and nothing will happen; the explosion is so slow that the air gives way before the gases can react on the rock. Try a dynamite high in nitro-glycerin content; it will detonate and release its gases so rapidly that there is not time to displace the air, and the rock will be shattered. In this regard, I would like to suggest that someone prove or disprove this experiment by making a very small rocket and firing it under an exhausted bell jar. I'll bet you a cigar that it will never move; providing, of course, that the volume of the bell jar is great enough so that the exhausted powder gases will not increase the density within the jar.

In spite of my belief, I am open to conviction. If rockets can be made to work in a vacuum, I will be glad to receive full data upon the experiments.

Your paper is quite interesting. The stories are a little too wild for me, but I do enjoy your editorials.

Why use a rocket, anyway? Why not a .50 Browning machine gun? The bullets would certainly furnish a medium for obtaining the necessary recoil. In a vacuum, not much energy would be necessary, due to lack of head resistance, and the m.g. would certainly furnish a much smoother flow of power. It might also come in handy upon reaching one's destination, if any!!

E. M. Hoskinson,
1915 South 23rd, Lincoln, Nebr.

(We print this letter as it goes to show how the erroneous conception of action and reaction persists. The air which our correspondent thinks of as a sort of wall or abutment for the gases from the rocket to push against does not operate in that way. It impedes the motion of the rocket by its resistance so that a rocket would go much faster in the vacuum, so-called, of space than in the air. This fact is based on Newton's law of action and reaction. Goddard of rocket fame has, we believe, proved it experimentally.—EDITOR.)

A TOO FLATTERING CRITICISM OF OUR MAGAZINE

Editor, AMAZING STORIES:

Just got your November issue. You're getting better and better. Talk about a neat publication! The stories are better, the binding stronger, the covers as near perfect as anything on this sphere can be, and most of your artists, fine!

The cover on your November issue—and a fine cover it is—is drawn by Artist Wesso, I believe. Say! that gentleman is great! If anybody can beat Paul, it's he! And he can draw figures well, too. Morey is fine, McGerr, fair. But Wesso's the *real* guy!

Now for your stories. "Microcosmic Buccaneers" was perfect. That's all I have to say for it. "The Brain Accelerator" was fine, though it had a lot of technical stuff in it. "Cold Light" was another of these rare gems. "The Undersea Tube" was fine, as is expected of L. Taylor Hansen. His "What the Sodium Lines Revealed" was a jewel.

"The Moon Woman" was great; "The Secret Kingdom" comes up to Kline's standard.

Please let us have some more Interplanetary stories, some more Insect stories, some more Robot stories, and a few archeological ones.

Give us Francis Flagg, Stanton A. Coblentz and Ray Cummings, *please*.

What is Wesso's whole name? I heard that Stanton A. Coblentz was killed in an accident. Is this true? I hope not.

I am delighted at the way you get your magazine out. It is always on time or a few days earlier.

Is AMAZING STORIES in a company by itself? If so, I wish your little company luck. Dr. Sloane's editorials are great.

I am anxiously awaiting the QUARTERLY, I hope "she" comes out on the dot.

Robert A. Ward,
544 East 38th Street, Baltimore, Md.

(The editors must blush when they publish this letter, but it certainly is great satisfaction to realize that some of our readers appreciate the little we are able to do for them. We know that we have excellent authors on our staff, if they will permit us to call them so, and our artists are certainly now very good. Mr. Coblentz was not killed in any accident. He has been in

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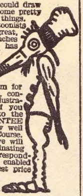

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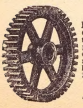

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Europe and is now back, after a very interesting trip. AMAZING STORIES is one of a number of magazines published by this firm. We think the Quarterly and Monthly will come out "on the dot." As regards specifying authors, we wish you could see the pile of good stories and manuscripts which are awaiting publication. We feel that we are certainly much appreciated by authors and your letter shows us how much we are also appreciated by some of our readers.—EDITOR.)

AN INTERESTING LETTER FROM ONE OF OUR AUTHORS

Editor, AMAZING STORIES:

There may be some difference of opinion as to the desirability of permitting authors to make use of the correspondence columns of our magazine, but so long as we refrain from anything resembling controversy with our readers and confine ourselves to explaining points in our stories which have aroused interest or doubt, letters from authors will serve a good end. With this object in view, therefore, I will endeavor to clear up some incidents in my own humble contributions to which readers have taken exception.

In the "Face of Isis," one or two readers are rather contemptuous of poor old Prof. Wadsworth's theory that a body deprived of gravitation would leave the earth at a tangent. I must confess to a deliberate hoax on this point, as I explained to the Editor at the time I sent him the manuscript of the story. I hoped—a hope which has been justified—to set my readers to thinking for themselves. The fact is that the worthy Professor was both right and wrong. The following is the logical explanation:

If it were possible to release a body from the action of gravity, that body would partake of the exact movement of the surface of the earth at the point where the body was resting at the moment of its release. The motion of the earth's surface is a compound of several different movements, i.e., the revolution of the earth upon its axis, its rotation around the sun, the flight of the solar system through space, etc. Now, any *straight line* element of this compound motion will not produce any change in the relative positions of the earth and the gravity-free body. You will remember that when the travelers in Jules Verne's projectile threw the dead dog out of the port-hole the body continued to travel side by side with the projectile.

The earth's orbit and the flight of the solar system through space approximate (for short periods of time) so nearly to straight lines that their effect upon a gravity-free body would be scarcely perceptible. Therefore, a body suddenly freed from gravity at the equator would leave the earth at a speed of about 1000 miles per hour and would travel in a straight line, *tangent* to the earth's surface. But—and it's a great big BUT—the observer, standing upon the equator, would also be traveling at a speed of 1000 miles per hour in the same direction, almost keeping pace with the gravity-free body, which would, therefore, appear to rise almost vertically above his head. The apparent motion would be, at first, extremely slow and would accelerate rapidly, but this acceleration is only apparent.

The inquiring reader may be interested in drawing a diagram to illustrate these conditions. Draw a circle with a radius of 3.82 inches (3 13/16). Divide the circumference into 24 equal arcs, each of which will be 1 inch and will represent the movement of the earth in one hour. Now, taking one of these points, draw a long line tangent to the circle. This represents the path of the gravity-free body. Mark this line off in inches, each inch representing the flight of the body in one hour. Number the marks on the straight line, 1, 2, 3, etc., and also number the hour-marks on the circle similarly, starting in both cases from the tangent point, calling that zero. Remember that when the observer is at points 1, 2, 3, etc., the radius lines through those points represent "straight up" to the observer. It is now easy to trace the apparent position of the body hour by hour, and it will be seen that it seems to travel backward, i.e., toward the west. When a line from a given point on the tangent line, to the corresponding point on the circle, is at right angles to the radius, the body will appear to "set" below the western horizon.

In connection with this same story, another reader raised the point that it is unreasonable to suppose that an etheric force, like gravity, could be nullified or increased by a chemical reaction. Come, come! Leaving out the fact that we do not know anything about the nature of gravity, it is everyday experience that etheric forces are modified by chemical reactions. For example, suppose you allow a ray of light to pass through

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Just one more point and I am done. A reader of "Gold Dust and Star Dust" raises the point whether the boxes of gold would have returned through the Fourth Dimension the first time the Power Beam was turned on, without the intervention of Dr. Hilary Corwin. The whole story is wildly imaginative, of course, and hardly subject to logical reasoning, but I think this reader has missed the point. It was not the Power Beam itself, but the sudden shutting off of the Beam, which produced the tremendous strain in the ether, which hurled the boxes into the Fourth Dimension. Hence, Corwin's illustration of the rubber band. The Beam was normally supposed to be started gradually and built up to full power by means of rheostats. Corwin's friend, the engineer, turned on the full force of the Beam instantaneously, thus producing the violent counterstrain which brought back the boxes.

All nonsense, of course, but at least logical.

Cyril G. Wates,
7718 Jasper Ave.,
Edmonton, Canada

(We are very glad indeed to have our authors write letters to us. Your letter is so full that it requires no particular comment. Your concluding statement is quite amusing, as is your desiring logic in the story.—EDITOR.)

THE QUESTION OF LONG OR SHORT STORIES

Editor, AMAZING STORIES:

I have just completed reading A. S. for December and I thought I would write a letter to you and comment on various things.

First of all: Your short stories are *TOO short.* In many of the stories you have barely gotten interested in the characters and the plot when the story ends. And too many times it has an unhappy ending. What is the need of the inventor meeting an unhappy death, etc.? It is not a necessity for the author of a short story to kill off the hero and heroine. Many of the short stories you have published at various times had a happy ending. Some of these were very interesting too. I refer in particular to "The Tide Projectile Transportation Co." "John Jones' Dollar," and similar stories. I think that you should be running one serial of about three or four issues in length at a time. In each issue publish a fairly long instalment of the serial; two quite long short stories, that is one-issue stories, such as "Green Splotches," "Around the Universe," "Armaggedon," and "Microcosmic Buccaneers"; then publish one or two short stories such as I have mentioned in the first part of this paragraph. Then of course the Discussions Department. This might make the magazine a little longer than it is now, but I am sure that none of your readers would object to this. Probably it would help your circulation to increase too, which would help pay for the additional size of the magazine.

Now for the kind of stories to use. For the long stories I would suggest that you vary the kind of stories used. First, let us say, run an interstellar or interplanetary serial, then for the next use one like the "Moon Pool." Then use one involving the fourth dimension, time, strange races, or similar types. By all means be sure that the human interest is present in the story. And don't let the author be afraid to use his imagination, a writer of scientifiction has just as much right to use poetic license as any other writer, providing, of course, that he does not violate the laws of science *too* recklessly (I might add that I have not noticed this to any great extent, if at all, in A. S. so far). Then too, I think that most of us like a happy ending. After you have suffered with the hero through a story, if it is a good one, you feel quite a personal interest in him, and of course a happy ending is in order. I myself prefer interplanetary and interstellar stories about the best of all. For short stories I would suggest humorous inventions, such as those of "Hicks," every once in a while; Fourth Dimensional, time, rays, different forms of life, unexplored places on the earth, the atom, and even interstellar stories are all very good, if well written. Don't be afraid of imagination, happy endings, and personal interest in these either. It is in the short stories that the unhappy ending has reached its peak, it seems that

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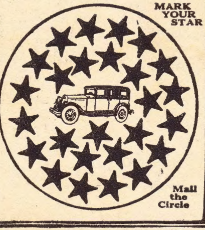

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At present you have a very fine staff, if it may be called such, working for you. A. Hyatt Verrill, Clare Winger Harris, Dr. Miles J. Breuer, Harl Vincent, Edward L. Rementer, The Klines, Leslie Stone, Dr. Dressler, W. Alexander, and others are very fine. By all means continue the stories by these. As to pictures: I think that your cover illustrations are very fine, in many respects better than in the past. However, your artist who has illustrated "The Secret Kingdom" is not so good. His drawings are not lifelike, and almost made me dubious of the story when the first instalment was published. Your other artists are O. K. As to quantity: I, personally, prefer the old idea of one picture in front of each story and no more. The space can be more interestingly and usefully used for stories, in my estimation. I especially do not like pictures of the characters of a story. My reason for this is that they are usually disappointing. In reading a story I unconsciously form a picture of the characters. When I see a picture of them it usually differs from my idea and is disappointing.

The Discussions Department is very interesting and should be continued just as it is. I agree heartily with the letter of R. H. Thomas in the December issue. Not only with his answer to Mr. Vernon's letter of a couple of months previous, but also with his view of "Around the Universe."

Your magazine is an extremely interesting one. The type of stories are thought-provoking and I feel sure that they have interested many people in science, or augmented their interest if they already had one. Since science will progress according to the number of people interested in it and since civilization depends on science and will advance as science does, you are doing your bit toward the progress of civilization.

Jack P. Sickels,
Lapwai, Idaho.

(You are the second correspondent who suggests some long serials. Consciously or unconsciously, we have rather avoided these, feeling that each magazine should be complete in itself, as a rule, although we have given a number of two-part stories. We are trying to give the variety in stories which you suggest. Sometimes similar stories will come together under the various conditions of the Editorial Department, but we try to avoid it. Your suggestions we consider of very decided interest and they will receive full consideration. We flatter ourselves by adopting the terminology which you employ, calling our regular authors our staff writers, though, of course, literally, they are not. The discussions columns involve far more work, far more time and far more thought than one would believe, but we take the greatest interest in them and words of appreciation from our readers, such as you give us, are warmly appreciated. We shall certainly never give these columns up.—EDITOR.)

A GOOD WORD FROM A STUNT AVIATRIX (NOT AVIATOR)

Editor, AMAZING STORIES:

After reading the childish letter written by the "High School Skeptic," it seems your magazine is in line for a good word, from one also of high school age, but who has been out of school for four years.

I am an aviatrix, holding two world's records in parachute jumping and have been doing stunting, etc., for four years, and still enjoy aviation stories immensely, though they are usually far-fetched, and sometimes impossible, but they have a basic foundation. So it is with your other stories. One who is the least bit interested in science, will appreciate scientific fiction, at least so it seems to me.

I have been reading your magazine for two years and expect to continue reading them as long as they are as good as they are now and always have been.

(Miss) Jeanne Du Rand,
Chateau Hotel,
Chicago, Ill.

(We thank our fair correspondent for her appreciation of our efforts. Aviation is a topic frequently used by our authors, with expansion into interplanetary stories. The position which AMAZING STORIES has acquired tells us that there is a class of readers who enjoy natural science presented in fiction, and used as the framework for stories. The great difficulty in our work is keeping the science in line with the more recent developments, for what are called "classic physics" are subject to attack and modification to a very great extent.—EDITOR.)

"SKYLARK THREE," sequel to "The Skylark of Space," by Dr. Edward E. Smith will appear as a serial in AMAZING STORIES soon.—EDITOR.